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ABSTRACT

Described is a curriculum in urban environmental education. The curriculum is based on three major premises: (1) The curriculum development must involve educators as well as representatives of those affected by the curriculum; (2) Effective urban environmental education curricula must be comprehensive; and (3) It is necessary to identify organizing centers around which instructional strategies and curriculum materials can be organized. Described is the process of formulation of a curriculum incorporating these premises. Analyses of applications of the curriculum are presented. (RE)

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PROJECT ENVIRONMENTAL ACTION COMMUNITY EDUCATION

P.E.A.C.E.

Department of Curriculum and Instruction
Memphis State University

United States Office of Education
Department of Health, Education, and Welfare

General Project Environmental Education
Grant #G007701234

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DESCRIPTIVE SUMMARY OF
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

GRANT # G007701234
(U. S. Office of Education)

RESEARCH TEAM MEMBERS

Dr. Duane M. Giannangelo. Social Studies Specialist. Department of Curriculum and Instruction. Memphis State University.

Dr. Harry K. Bowman. Evaluation Specialist. Bureau of Educational Research and Services. Memphis State University.

Dr. Stephen D. Fitt. Educational Medial Specialist. Department of Curriculum and Instruction. Memphis State University.

Dr. Lana J. McWilliams. Reading and Language Arts Specialist. Department of Curriculum and Instruction. Memphis State University.

Dr. John F. Thompson. Science Specialist. Department of Curriculum and Instruction. Memphis State University.

Dr. Roger V. Bennett. Curriculum Specialist. Department of Curriculum and Instruction. Memphis State University.

ABSTRACT

OBJECTIVES. Project Environmental Action Community Education (P.E.A.C.E.), was a $192,000.00 research, designed to implement and evaluate an urban environmental education program. University faculty, public school educators, parents, students, and representatives from environmental agencies and the community actively participated in all phases of this program. The specific tasks accomplished in the project are described in the sequence of process objectives that follows: (1) Implementation and formative evaluation of the curriculum Model used to develop eight learning modules, (2) Implementation, revision, and evaluation of the environmental leadership and inservice teacher education modules, (3) Implementation, revision, and evaluation of the eight instructional modules, (4) Final revision and dissemination of project materials.

GENERAL PERSPECTIVE. A problem facing urban educators concerned about environmental education is that of finding ways to develop and implement effective environmental curricula and instructional strategies. These curricula and instruction strategies must (1) have relevance for persons living in urbanized areas, (2) go beyond merely arousing affective awareness and imparting isolated bits of information to the development of intelligent action, and (3) be aimed at a wider audience than that typically serviced by primary and secondary schools. The need exists for finding strategies to develop and implement effective action-oriented and community-based programs aimed at preserving and enhancing environmental quality and ecological balance in urban areas. Our citizenry needs to be educated in the process of making intelligent value choices and of translating these choices into courses of action if it si to be capable of doing more than merely being cognizant of its own demise. The need exists for an environmental education that combines effective (1) awareness, (2) knowledge, and (3) cognitive abilities with (4) an action oriented model for valuing.

THEORETICAL FRAMEWORK. The curriculum development model created in this project is based on three premises. First, it is assumed that the process of curriculum development must involve educators as well as representatives from groups for whom the curriculum is intended. Effective curriculum development needs to be viewed as a system which involves personality structures in social settings as well as subject matter and instructional methodology. Thus, teachers and learners are viewed as important curriculum developmers and instructional implementers. Second, an effective environmental curriculum must be comprehensive in scope. Curricular materials, instructional strategies, and learning modules need to be designed to accommodate the interests and needs of relevant consumer groups. Consequently, the curriculum model used in the present study was designed to maximize its generalizability and transferability. Operationally, the model was intended to be applicable to all segments of our society, taking in account such characteristics as socio-economic, political, cultural, and other factors. Third, it is necessary to identify instructional organizing centers around which instructional strategies and curriculum materials will be organized. Eight themes provide the organizing centers for the instructional modules to be developed on this project.

METHODOLOGY. Curriculum personnel from the Memphis City Schools and educators from Memphis State University worked with twenty-nine classroom teachers,

ABSTRACT (Continued)

four community representatives, four parents, four students, and four school administrators to develop eight Instruction Modules, an Inservice Module, and a Leadership Module. The "Environmental Leadership Module" was designed to train school administrators in the skills and knowledge needed to implement and administer an environmental education action program; the involvement of parents, community adults and students both in developing and implementing a program within a local school and as participants in such a program; community relations; program evlaution; and, other skills or knowledge as decided upon by the planning group. The "Teacher In-Service Training Module" was designed to help teachers learn the skills, knowledge, and values necessary for implementing an environmental education program which is community oriented. The eight Instructional Modules were developed to deal with environmental issues and problems in a manner consistent with the curriculum model. Each module was organized around one of the following eight themes and incorporated into science and social studies curricula of the Memphis City Schools at the junior high level: (1) Urban Environmental Development and Planning, (2) Social Services and the Urban Environment, (3) Aesthetics and the Urban Environment, (4) Economics and Politics of Resource Management, (5) Cultural Dynamics and Pluralism and the Urban Environment, (6) Responsible Use of Natural Resources--Environmental Ethics, (7) Recreational and Cultural Use of the Urban Environment, (8) Transportation, Communication--and the Urban Environment. The criteria that were used for the formative evaluation of the emergent educational program included (1) relevance, (2) organization, (3) feasibility, (4) applicability, (5) comprehensiveness, (6) generalizability, and (7) transferability.

DATA SOURCES. The data for evaluating the impact of the inservice education for teachers were provided by the "Teacher Inservice Module Evaluation Scale." This scale focused on the cognitive behaviors and skills that were addressed by the objectives of the module. The effects of the environmental leadership training was assessed through use of the "Environmental Leadership Module Evaluation Scale." The items on this scale were based on the cognitive behaviors and skills incorporated into that module's objectives. The "Environmental Education Attitude Scale" was employed to assess changes in value systems and valuing strategies which could be attributed to participation in the module activities. The content of the scale dealt with environmental problems facing urban communities and courses of action to remediate the problems. Levels of moral decision-making also were evaluated. Two instruments were developed and used to assess each of the eight instructional modules. Pretests and posttests were administered to the respective groups of subjects who utilize each module. An additional scale was used as a pretest and posttest with all subjects. A pretest-posttest design was used to analyze data. The t-test procedure for correlated data was utilized with the means to determine if significant change occurred for each of the two groups on each of the instruments. In addition, the chi-sqyare technique was employed with the pretest and posttest responses to each item to identify specific areas where the module activities affected the participants. These two analytic approaches provided for the assessment of the overall impact of each module as well as the effect of the modules with respect to specific objectives.

RESULTS. Formative evaluation of the curriculum development model was undertaken by a team comprised of university faculty, external consultants, graduate assistants and school curriculum specialists. Philosophical foundations of the model, political decision-making processes, and planning strategies for involving the various participants were studied. Discrepency analysis

ABSTRACT (Continued)

indicated no major design flaws or inconsistencies in actuating the model. The eight Instruction Madules generated from the model also were evaluated and judged adequate in terms of the following criteria (1) educational appropriateness for the learners, (2) reading level, (3) accuracy of generalizations, concepts, and factual information (4) organizational integrity of the content, and (5) relation of learning activities to instructional objectives. The relevance of the instructional modules to the Memphis environment also was validated by representatives from several community and environmental groups not directly involved in the project. Results of these formative evaluations indicated the curriculum developmental model was structurally sound and functionally effective. Summative evaluation of (1) curricular, (2) teaching, and (3) learning outcomes in the post-instruction "consequence" phase of the research further validated the curriculum development model.

The eight instructional modules were evaluated by students using (1) the Module Activity Questionnaire, (2) the individual module tests, (3) the Environmental Attitude Scale, (4) the Problem Solving Processes Inventory, and (5) the Environmental Action Options Scale. The results of the pre-posttest measures of cognitive student knowledge of terminology indicated that statistically significant gains were obtained on seven of the eight modules. For the composite group of students, there was no significant change with respect to comprehension of steps in problem solving processes. In the affective assessment, a significant negative change occurred on a measure of attitudes toward environmental problems and potential solutions in the urban environment. There was no significant change in values related to the environment as reflected by choices of action in decisions affecting the environment. The reactions of students to the modules as units of instruction were positive to a highly significant extent statistically. The most positive responses related to the students' freedom to choose from among many activities, the opportunity to do individual and small group activities, the importance of the learning promoted by the activities, and the helpfulness of the teacher as a facilitator in doing the activities. Statistically significant favorable responses were reported for the evaluation of the specific activities in the modules.

The strategy for evaluating the teacher training module involved a pretest-posttest design using the (1) Teacher Inservice Module Evaluation Scale, (2) the Environmental Attitude Scale, (3) the Problem Solving Processes Inventory, and (4) the Environmental Action Option Scale. The results from the pretest, the posttest at the end of the inservice and the posttest at the conclusion of the field test indicated that the means improved for the experimental teachers on the total score as well as all parts of the Teacher Inservice Evaluation Scale. The increase on the total score was statistically significant at the .05 level when the pretest and the second posttest were compared. The experimental teachers revealed a consistent pattern of higher performance on the two posttests than on the pretest for the total score and the three parts of the Problem Solving Process Inventory.

The leadership Module was evaluated with (1) the Leadership Module Evaluation Scale, (2) the Leadership Inservice Response Scale, and (3) the Environmental Attitude Scale. The school administrators showed a general pattern of slightly higher means on the posttest than on the pretest. The t-test analyses of the change score means for school administrators on the Leadership Module Evaluation Scale indicated that none of the change score means was significant at the .05 level of significance. Several items on the Leadership Inservice Response Scale obtained very positive means. The participants indicated that the inservice staff personnel were very effective in the conduct of the inservice. The facilities for the inservice were judged as highly suitable for this purpose. The inservice participants felt that ample opportunity was

ABSTRACT (Continued)

provided for questions, discussion, and comments. The inservice was viewed as beneficial in helping the participants understand the need for their administrative support in implementing the P.E.A.C.E. instructional modules. The t-test analysis of the change scores of administrators on the Environmental Attitude Scale indicated that the slight negative change was not significant at the 105 level of significance.

EDUCATIONAL IMPORTANCE OF THE STUDY. The need to develop environmental curricula and instructional programs with an urban orientation is a pressing one for educators. There is no reason to suppose, for example, that the urban environmental situation has improved or even stabilized since the President's Council on Recreation and Natural Beauty reported in 1968 that, "One of the most ominous threats to the environment lies in the failure of man thus far to provide humane solutions to the problems posed by the spread of his own numbers. NO major urban center in the world has yet demonstrated satisfactory wasy to accommodate growth." While it would be naive at best to suppose that urban educators should search for and attempt to develop programs for effectively educating urban residents to be able to take intelligent action aimed at dealing with urban environmental problems. Problems related to translating nationally and professionally developed curricula into instructional programs need to be taken into account in suggesting the development of an urban environmental curriculum. Thus, a model for curriculum development is needed which reduces or alleviates problems from the curriculum development process itself. This research was aimed at implementing and evaluating a community action educational program dealing with the presergation and enhancement of environmental quality and ecological balance within an urban area.

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NARRATIVE REPORT

The Project in Environmental Action/Community Education was designed to implement and evaluate a community action curriculum development model concerned with the preservation and enhancement of environmental quality and ecological balance within an urban area. Further, it was stipulated that students, teachers, parents, community representatives, school administrators, public school curriculum specialists, and university personnel would cooperatively develop, implement, and evaluate an operational curriculum and its supportive instructional strategies.

It is important to emphasize that representatives of each of these groups are involved in all stages of the project from planning through implementation and evaluation. It is also noteworthy to recognize that this research is not limited to one selected locale. On the contrary, it is designed to impact at the national, regional, state, and local levels.

Specific tasks to be accomplished in the project are described in the sequence of process objectives that follows:

Objective 1: Implementation and formative evaluation of a developmental curriculum model used to generate effective urban environmental curricula.

Objective 2: Implementation, revision, and evaluation of the environmental leadership and in-service teacher education modules.

Objective 3: Implementation, revision, and evaluation of the eight instructional modules.

Objective 4: Dissemination of the research findings and recommendations and the revised curricula and instructional program.

The curriculum model developed for P.E.A.C.E. is based on three premises. First, it is assumed that the process of curriculum development must involve educators as well as representatives from groups for whom the curriculum is intended. Effective curriculum development needs to be viewed as a system which involves personality structures in social settings as well as subject matter and instructional methodology. Thus, teachers and learners are viewed as an important element in curriculum development.

Second, an effective urban environmental curriculum must be comprehensive in scope. Curricular materials, instructional strategies, and learning modules must be designed to accommodate the interests and needs of relevant consumer groups. Consequently, the curriculum model used in the present study is designed to maximize its generalizability and transferability. Operationally, the model is intended to be applicable to all segments of our society, taking in account such characteristics as socio-economic, political, cultural, philosophical, and other factors.

Third, it is necessary to identify organizing centers around which instructional strategies and curriculum materials can be organized. Utilizing these fundamental premises, the conceptual framework illustrated in Figure 1 was created.

Figure 1 is a graphic representation of the conceptual framework used to assess the curricular potentialities of environmental education. The three concentric circles identify distinct planes of curriculum operations. Thus, it is acknowledged that there are different levels of decision-making and actions. The elongated arrows extending from the outer circle to the inner circle indicate the temporal relationship among the planes as well as the general direction of evolving activities. These

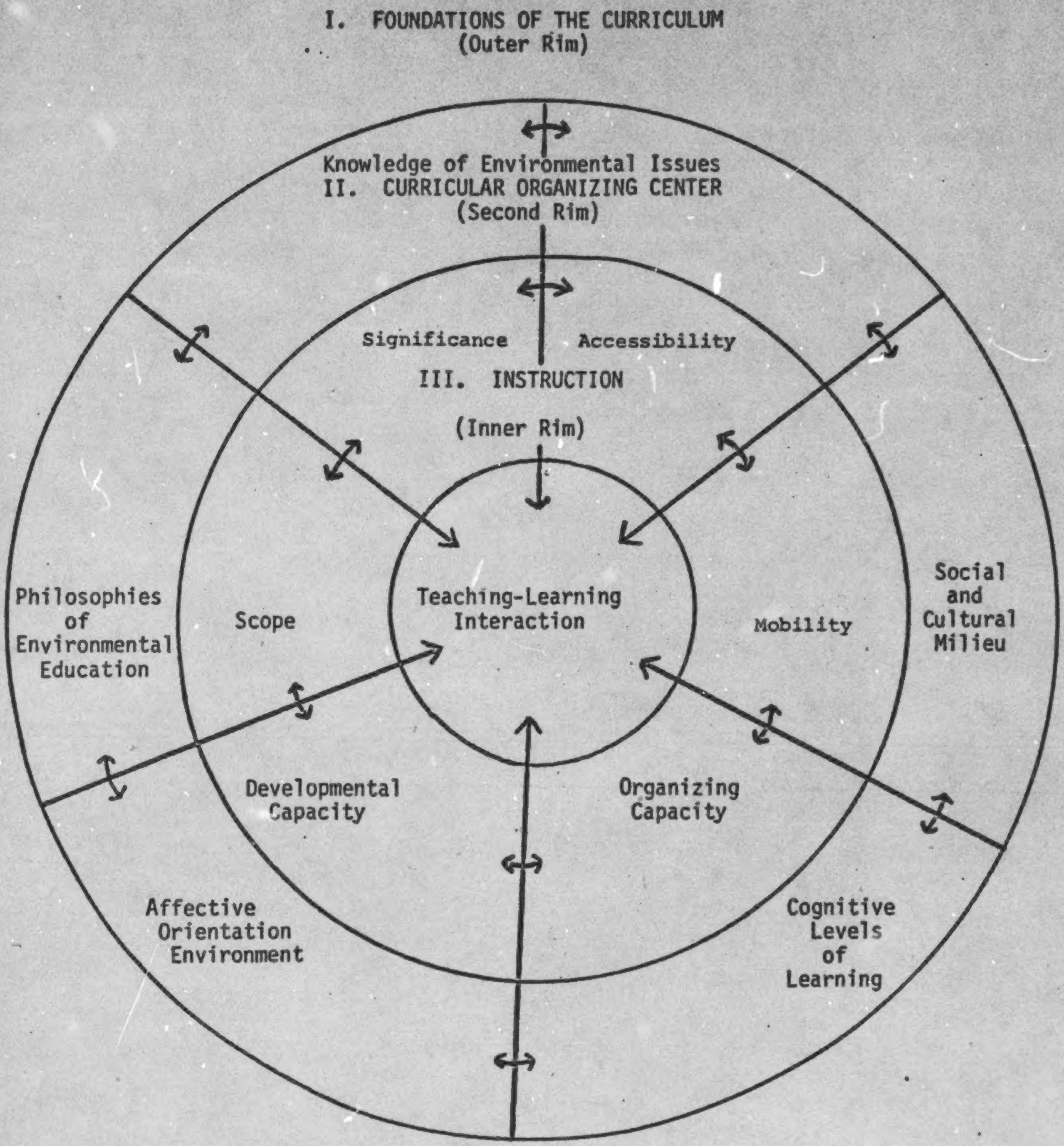

I. FOUNDATIONS OF THE CURRICULUM
(Outer Rim)
Knowledge of Environmental Issues
II. CURRICULAR ORGANIZING CENTER
(Second Rim)
Significance
Accessibility
III. INSTRUCTION
(Inner Rim)
Teaching-Learning Interaction
Philosophies of Environmental Education
Scope
Mobility
Social and Cultural Milieu
Developmental Capacity
Organizing Capacity
Affective Orientation Environment
Cognitive Levels of Learning

Figure 1
Conceptual Framework for Environmental Education

arrows also suggest the interdependence of the decisions and actions at the various levels and point to the focus of all curriculum operations, i.e., teaching-learning interaction. As illustrated, each operational plane is divided into analytically discrete constellations of dynamic variables. The interrupted boundary lines and the two-way connecting arrows denote interactions among subsumed variables as well as whole constellations. Viewed in two dimensions, this conception reveals simultaneous interrelationships and interactions along both horizontal and vertical axes. The complementary interfaces among the components of this total "action system" are indicative of a continuous spiraling sequence of events. Because of the complexities and dynamics of the whole system, intervention at any given point sets into motion a "ripple-effect" that manifests itself in subsequent occurrences. The resulting synergy produces a greater change than the sum of the independent efforts of the separate elements. This holistic conception of reality tends to discredit traditional "black-box" paradigms that attempt to describe, explain, and predict curricular phenomena as simple cause-and-effect relationships.

For the purpose of the P.E.A.C.E. research, the foundations level shown in Figure 1 is divided into four constellations of variables. Collectively, these sources of inputs are considered essential for developing personalized urban environmental curricula. For example, the affective realm contains the individual's (a) perceptions, (b) expectations, (c) anxieties, and (d) characterizations relative to his/her immediate environment. The cognitive levels of learning incorporate such variables as a person's learning style and his/her present capacity to comprehend abstraction, such as aesthetics and urbanized environments. Sanitation systems, noise pollution and use of land are examples of specific referents in the social and cultural domain. The knowledge category includes a number of variables ranging from specific bits of demographic data to established generalizations regarding the environment. Pragmatism and existentialism are representative of basic orientations in the philosophical realm.

Using the foundations level as a departure point, attention is directed toward the following concerns in the present study: (1) Is the knowledge of environmental issues adequate for developing school curricula? Will the present social and cultural milieu support the development and implementation of community action oriented education? (3) Are existing philosophies compatible with values and valuing processes advocated for contemporary school curricula? (4) Will the cognitive levels of learners permit the assimilation and/or accommodation of concepts of environmental education? (5) Can the affective orientations of youth and adults toward environment be modified through in-school educative experiences?

Should adequate foundations exist, then it is possible to move to the next level of curriculum operation, i.e., selecting curricular organizing centers. Characteristics of effective centers, as discussed by Herrick (1965), Taba (1962), Goodland (1964), and Bennett (1974) are identified in the middle circle of Figure 1. In the present investigation these qualities were re-defined as follows:

1. Significance. The organizing center should have a high degree of personal importance for the

learners. It also should have considerable potential in the field of environmental education, i.e., the study of natural phenomena. Finally, the center must be generally valued in the culture.

2. Accessibility. The organizing center should be easily available to the learners. Some mix of cognitive, affective, and psycho-motor interaction should be possible with the center.

3. Organizing Capacity. The center should link past, present, and future educative experiences. It also should relate ideas, decisions, actions, and consequences. In addition, it should provide a focal point of attention for many kinds of learning.

4. Developmental Capacity. The organizing center should be open-ended, permitting learners to extend their own levels of understanding. Divergent thinking should be facilitated by using the center. Higher levels of cognition and affective valuing also must be attainable.

5. Scope. The organizing center must be sufficiently multidimensional to allow analyses from several perspectives, e.g., economic, social, or political. The center should have meaning for a broad range of people as opposed to being relevant only to a select group.

6. Mobility. Lastly, the center should possess a high degree of mobility, i.e., it can move through various (a) time periods, (b) cultures, (c) socio-economic systems, and (d) educational rationales.

With respect to the current research, specific concerns arising at this level were derived from the following general question: Do environmental issues exhibit the characteristics of an effective curricular organizing center?

"Teaching-Learning Interaction" appears as the vortex of all curriculum activity in the conceptual framework illustrated in Figure 1. Operationally, this construct is visible in the reciprocal exchanges of cognitive, verbal, and affective behaviors among students and teachers. Underlying personal values and overt communication systems exemplify some of the implicit variables that influence total interaction problems.

Concerns at this level of curriculum operation emanated from the following overarching inquiry: Can teaching and learning systems, as defined by Macdonald (1965), adjust sufficiently to maximize positive educative experiences within environmental curricula?

Teachers and school administrators were seen in the present research as having the technical expertise needed to develop a curriculum and translate it into instructional strategies. Therefore, they had the primary responsibility for the development of the environmental education program. Parents, community representatives, and students, on the other hand, possess values and interests which determine the effectiveness and relevance of the learning opportunities contrived by the educators. Consequently, these three groups were actively involved in planning instruction, i.e., establishing objectives, selecting content and organizing activities. It was the task of the university educators and public school curriculum specialists to facilitate these collaborative efforts.

Eight instructional modules were developed to deal with major environmental issues and problems of concern in Memphis within the curricular framework described earlier (see accompanying module package). Each of these instructional modules deals with one of eight themes determined by an interdisciplinary advisory team to be relevant to the urban environmental situation in Memphis. The eight themes identified for the modules focused on environmental development and planning, social services, aesthetics, resource management, cultural dynamics, environmental ethics, leisure activities, and transportation and communication. These themes are viewed as being easily included within the present science and social studies curricula of the Memphis City Schools at the junior high school level.

Recognizing the need for an action oriented valuing process in environmental education the model developed by Raths, Harmin, and Simon (1966) was used as one departure point for planning the eight instructional modules. As described by its developers, this model for valuing includes three steps: (1) choosing freely from among alternatives after thoughtful consideration of the consequences of each alternative course of action, (2) public affirmation of the chosen alternative as an indication that the choice is cherished, and (3) doing something repeatedly with the choice in some pattern of life. This model suggests the need for three types of objectives and corresponding learning opportunities. It also suggests a sequence for these types of objectives and opportunities.

Since the first step in the valuing process entails the formulation and evaluation of a course of action, Bloom's (1956) taxonomy of cognitive behavior was used to formulate specific objectives and structure learning activities for the instructional modules. The levels of cognitive behaviors identified by Bloom and his colleagues are organized in the following hierarchy:

1. Knowledge (lowest level of cognitive behavior)
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation (highest level of cognitive behavior)

Evaluation as defined by Bloom and his colleagues requires that reasons be given for selecting courses of action. For purposes of values clarification, Kohlberg's (1975) scheme of moral reasoning was used as a framework for evaluating and ordering the types of reasons which learners give for a selected course of action. The stages of moral reasoning identified by Kohlberg not only provide a basis for evaluating courses of action selected by a student or group of students, but also provide a basis for adjusting learning activities to the appropriate educational level of the student.

Figure 2 illustrates the interrelationships and interactions among curriculum development and instructional variables in the P.E.A.C.E. research. The criteria that will be used for the formative evaluation of the emergent educational program will include (1) relevance, (2) organization, (3) feasibility, (4) applicability, (5) comprehensiveness, (6) generalizability, and (7) transferability.

1. Relevance -- By involving community adults, parents, teachers, students, and school personnel in the planning process, issues and problems which have relevance for Memphis residents (including the student population) can be identified for each of the eight curricular themes identified in this project.

2. Organization -- The curriculum rationale presented provides an organizational framework for stating objectives and selecting activities for each theme. Thus, each module can be developed to insure scope, sequence, and integration.

3. Feasibility -- The cooperative planning by teachers, administrators, public school curriculum personnel, and university faculty can insure that feasible activities (in terms of developmental skills and abilities of primary, intermediate, junior high, secondary, and post-secondary students) are selected.

4. Applicability -- By utilizing the Kohlberg scheme of moral reasoning, feasible activities can be adapted by individual classroom teachers.

5. Comprehensiveness -- Collectively, the eight instructional modules will deal with major

ENVIRONMENTAL THEMES
(PROJECT P.E.A.C.E.)

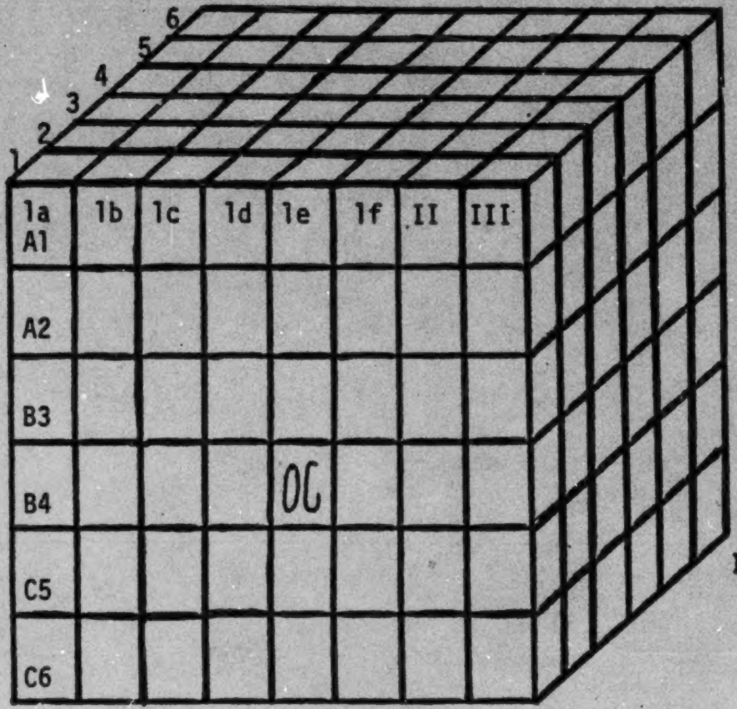
1. Urban Development & Planning
2. Social Services and the Urban Environment
3. Aesthetics and the Urban Environment
4. Economics and Politics of the Urban Environment
5. Cultural Dynamics in the Urban Environment
6. Responsible Use of Natural Resources
7. Leisure Activities in the Urban Environment
8. Transportation and Communication and the Urban Environment

Stages of Moral Development
(Kohlberg's Model)

A. Preconventional Level
   Stage 1. Punishment/Obedience
   Stage 2. Instrumental/Relative

B. Conventional Level
   Stage 3. Interpersonal Orientation
   Stage 4. Law and Order

C. Postconventional Level
   Stage 5. Legalistic
   Stage 6. Universal/Ethical



Types of Objectives and Learning Opportunities
(Bloom's Taxonomy)

I. Choosing
   a. Knowledge
   b. Comprehension
   c. Application
   d. Analysis
   e. Synthesis
   f. Evaluation

II. Prizing

III. Acting

Organizing Centers (OC)
(Bennett's Conception)

1. Significance
2. Accessibility
3. Scope
4. Organizing Capacity
5. Mobility
6. Development

FIGURE 2
Matrix of Interrelationships and Interactions Among Curriculum Development and Instructional Variables in Project P.E.A.C.E.

aspects of each environmental theme identified as well as the interrelationships among these themes. Individually, each module will exhibit high face validity in terms of significant concepts, generalizations, and specific knowledge and also be a cohesive unit of related educational experiences.

6. Generalizability -- The instructional program and the curriculum development model will be applicable to different populations and locales on a horizontal axis and to different age levels or school organizational structures on a vertical axis.

7. Transferability -- The instructional modules as well as the curriculum development model will be transportable and useable across a broad range of various educational settings. Derived learning outcomes will have extended and expanded applications in other areas of the total curriculum.

Upon notification of funding for P.E.A.C.E., university personnel involved in the project met for the purpose of planning and implementing the first phase of the project. The university personnel represented general curriculum, science education, instructional media, social studies education, reading education, and research. In addition, three university graduate assistants with background in research, teaching, instructional media, and general curriculum participated in this meeting. A liaison representative from the Memphis City School System was appointed and attended the initial planning session also.

Curriculum supervisors in social studies and science for each of the four administrative areas of the Memphis City Schools were informed of the project and their commitment was solicited. These eight supervisors became active in selecting twenty-nine classroom teachers, four community representatives, four parents, and four principals who constituted the remainder of the curriculum development group.

Project personnel were organized into ten planning and writing groups. One team, consisting of two teachers and three administrators, developed the Environmental Leadership Module. This module's main emphasis was to train public school administrators in the skills and knowledge necessary to implement and administer an environmental education-action program. The module dealt with the organization of the instructional program; the involvement of parents, community adults, and students both in developing and implementing a program within a local school and as participants in such a program; community relations; program evaluation; and other skills and knowledge to such a program.

A second team, composed of three teachers and one administrator, developed the Teacher Training Module. This module focused on the training of teachers in the skills and knowledge necessary for implementing an environmental education-action program within the framework of an urban community and incorporated within science and social studies curricula at the junior high level.

The remaining eight teams, each consisting of three teachers and a Memphis City School curriculum specialist, were assigned one of the following eight themes around which they organized and developed classroom instructional materials. These eight themes were:

a. Urban Environmental Development and Planning
b. Social Services and the Urban Environment
c. Aesthetics and the Urban Environment
d. Economics and Politics of Resource Management

e. Cultural Dynamics and the Urban Environment

f. Responsible Use of Natural Resources -- Environmental Ethics

g. Leisure Activities in the Urban Environment

h. Transportation and Communication and the Urban Environment

The activities in the eight instructional modules were designed to include different modes of instruction and levels of knowledge in order that learning experiences would be significant for students of various ability levels. The modules also contained a wide variety of instructional materials and activities -- games, films, field trips, simulations, role-playing, labs, discussions, and use of community resources. It was intended that these experiences should lead students toward "doing" rather than "talking about" problems in their environment. There was also included an emphasis upon involving significant community resource people in order to encourage more student-adult interaction. Most importantly, the program design was based on the belief that all activities should lead students toward an active role in actually solving some of the significant problems they would encounter.

Each instructional module was designed so that it could be taught independently of the other modules and in any sequence chosen by the instructor. The activities may be self-selected by students or by the instructor in accordance with general curriculum objectives, available resources, and student interest. In addition, they include large and small groups as well as individual learning opportunities.

Under the leadership of the university staff, all participants spent seven hours a day for four weeks in July-August, 1977, in developing materials. The first major task of each team was to develop specific curricular objectives to accomplish the following primary goals:

1. Implementation of an action-oriented and community-based curriculum project dealing with the preservation and enhancement of environmental quality and ecological balance within an urban area.
2. Utilization of the junior high school science and/or social studies curriculum framework for increasing awareness in the total community that the need exists for immediate solutions to and long-range planning for environmental problems unique to urban settings.
3. Education of citizenry in process of problem solving and of making intelligent value choices that can be translated into courses of action.
4. Development of intelligent strategies and actions for solving specific urban environmental problems.
5. Achievement of a fuller understanding of the urban environment, problems that confront it, the interrelationships between the community and surrounding land and opportunities for the individual to be effective in working toward the solution of urban environmental problems.

As the goals indicate, the problem solving process was the implicit focus around which the materials were designed.

Thus, the following global objectives for achieving the major goals were developed:

1. The students will have knowledge of and be able to apply the problem-solving process to environmental issues.
2. The students will be aware of environmental issues and work to a solution of at least two.
3. The students will be able to apply the valuing processes in the analysis of urban environmental issues.

The specific core objectives developed for the eight instructional modules were as follows:

1. The students will be aware of the contents of each module and will.
    a. be able to define and describe a minimum of terminology/concepts related to this module.
    b. be able to identify and be involved with at least two agencies connected with this module's topics.
2. The students will become involved with at least one specific problem per module and derive a workable solution to each problem.
3. The students will demonstrate ability to apply valuing processes by stating pros and cons of alternatives of at least one problem explored in the module.

After the goals and objectives for the modules were developed, the teams began designing specific activities for accomplishing these goals and objectives. The time framework under which these major tasks were accomplished is indicated below:

Week 1, Day 1 - Introductions; project overview; environmental simulation; review of other environmental projects, materials and activities; group assignments for 10 modules; and preliminary group planning.

Day 2 - Community environmental resource persons' discussion of problems in Memphis area; group work session - writing of preliminary objectives and one student activity to facilitate one of the objectives; group sharing time.

Day 3 - Research and review of existing environmental materials and projects; field trips to community resource agencies.

Day 4 - Outline and basic components of module presented; module development begun by each group.

Day 5 - Module development - Refine global objectives and identify 10 topics within module around which activities will be developed.

Week 2, Day 1 - Complete one activity for each 10 topics in each module; complete one motivational activity for four of the 10 topics.

Day 2 - Complete motivational activity for remaining six topics; complete two activities for each of 10 topics in modules.

Day 3 - Complete three activities for each of 10 topics in modules.

Day 4 - Complete activities for topics.

Day 5 - Complete activities for topics; formative evaluation of work completed thus far.

Week 3, Day 1 - Refine and rewrite global objectives for module; refine and rewrite specific objectives for each topic area; refine and rewrite objectives for each activity developed thus far.

Day 2 - Develop activities; share ideas among groups.

Day 3 - Complete activities; exchange activities among groups and carry one through to completion.

Day 4 - Complete activities.

Day 5 - Complete activities.

Week 4, Day 1 - Write core concept for module; write core concepts for each of 10 topics within module.

Day 2 - Refine global and specific objectives and module and topic concepts, making certain that all are interrelated and coherent; groups exchange work and critique (formative evaluation).

Day 3 - Refine and rewrite activities; list topics and activities in order of priority for developing objectives.

Day 4 - Code topics and activities; refine and rewrite as needed.

Day 5 - Evaluation of final products and development process.

During the Fall Semester of 1977, the university personnel met for weekly planning and progress reports, worked on the final revisions of the ten modules' format and content, packaged the materials to be used with the modules, and prepared for the in-service and implementation phases of the project. The modules were typed and printed in adequate quantities for the implementation with classroom groups of students.

At the beginning of the Spring Semester of 1978, schools and teachers from the Memphis City Schools were selected for field-testing the modules. The criteria used in selecting the school sites were as follows:

1. two schools from each of the four administrative areas

2. each school to include grades 7-9
3. a variety of physical settings represented among the participating schools
4. school not heavily involved with other experimental programs
5. class sizes average
6. facilities average to slightly above in quality
7. staff open to new ideas but not bandwagon jumpers

Twenty-four teachers and 10 schools were selected to participate in the field-testing. Of the 24 teachers, 12 were selected as a type of control or comparison group who would not receive formal in-service training, but would be given only the written in-service module prior to beginning the field-testing of the instructional modules. The remaining 12 teachers were given a day and a half of in-service training conducted by university personnel one week prior to the beginning of the field test. The following criteria were designed to select a representative cross section of administrators, teachers, students, and community areas to participate in the actual field-testing of the eight instructional modules, the leadership training module, and the teacher training module.

Administrators:

a. Administrators must express a genuine willingness to actively participate in and carry out the expectations of the leadership module.
b. Should have the ability to effectively communicate the PEACE program to others
c. Should be supportive of their teachers
d. Should have a good rapport with the teachers
e. Should have a good rapport with the students
f. Should have some concern for environmental issues
g. Should have interest in ongoing use of materials after field tests

h. Should have true interest in helping teachers with needs of program
i. Should be willing to actively participate in leadership session
j. Should be able to communicate our program to other staff members and administrators

Teachers:
a. Must have appropriate social studies or science certification and/or endorsement
b. Should have a good rapport with the students
c. Must be willing to provide written feedback regarding the program and/or modules
d. Should be open-minded
e. Should be willing to modify unit to help make it work if it cannot stand alone
f. Should not be involved in many other projects
g. Should have mix of black and white

Students:
a. Participating classes should attempt to duplicate racial proportions represented at the junior high school level in the Memphis City Schools
b. Should represent the three (3) major socio-economic levels
    (1) low-family income under $10,000/year
    (2) middle-family income between $10,000-20,000/year
    (3) Upper-family income above $20,000/year
c. Should represent the three (3) major ability levels, can use reading and I.Q. scores for describing

During the field-testing of the materials, university personnel made regular visits to all schools for the purpose of observing and assisting teachers in the field-testing. Each participating teacher tested two of the instructional modules over a period of 10 weeks. At the conclusion of the teaching of the first module, another half-day in-service session was held for the teachers as an opportunity for assessing their program and problems encountered.

One of the unique features of the PEACE project is that it provides a vehicle for familiarizing administrators with all aspects of the program. This feature was incorporated into the project as a result of a recognition that the principals of schools using innovative programs need to receive some in-service training regarding the new curriculum. Without such training, administrators are unable to (1) adequately facilitate the implementation of the new program, (2) anticipate and deal with the possible problems that might arise, (3) intelligently answer questions from parents and the community regarding the new program, and (4) be familiar with the details of the program operation at the classroom level. The designers of the P.E.A.C.E. program realized the importance of these and other considerations for the successful implementation of the environmental curriculum. Thus, a leadership training manual was designed to be used individually or as a guide to a three-session inservice workshop.

All participating administrators were given a comprehensive overview of the development of the P.E.A.C.E. project. This review dealt with the background of the project, the problems facing urban educators interested in developing and implementing effective environmental curricula, the major goals of the project, the global objectives of the program, and the core objectives for the eight instructional modules. The administrators were also made aware that the environmental curriculum is a multidisciplinary educational effort and that a wide variety of instructional materials are included. Also included was a brief summary of the themes of the instructional modules.

It is important that administrators incorporating the P.E.A.C.E. program in their schools be cognizant of the environmental problems which confront them daily. To develop an awareness of these environmental concerns, the administrators viewed a slide presentation of familiar areas within their community. This experience was totally visual. The participants had an opportunity to view each slide for approximately seven (7) seconds. A brainstorming session followed immediately for identifying environmental problems. Following the identification of problems, the administrators determined what responsibility public education has for this topic, and how environmental education could be incorporated into existing curriculum in their particular schools.

In order for the administrators to gain a more thorough understanding of the instructional modules and develop an understanding of the teacher's role in this program, it was necessary for them to review representative activities from the instructional modules. This review was done in conjunction with teachers so that the administrators would become more aware of the program process as well as any teacher concerns which could arise. Following the review of the module activities, the administrators observed a teacher question and answer session related to the above activity.

Two related activities were included in the leadership in-service to prepare administrators to deal with several major considerations in implementing the P.E.A.C.E. curriculum. In the first activity eight types of administrative concerns provided organizing centers for thinking, decision-making, and planning. The eight areas of concern were (1) advance planning, (2) communications, (3) supervision, (4) curriculum, (5) instruction, (6) school-community relations, (7) evaluation, and (8) post-evaluation activities. Specific objectives and exemplary questions were suggested to highlight issues and promote further inquiry and elaboration. The types of considerations, specific objectives, and exemplary questions were not comprehensive, but rather representative departure points. Other foci emerged as leaders began dealing with these suggestions. Small group analyses and large group discussions were used to share ideas and develop leadership strategies in the first activity.

In the second activity, simulated situations that dealt with selected administrative concerns were included. These situations enabled leaders to apply the generic problem solving skills utilized by the students and teachers participating in P.E.A.C.E. The skills of problem-solving were: (1) defining the problem, (2) collecting and recording data, (3) formulating a hypothesis (4) testing the hypothesis, and (5) drawing conclusions or formulating solutions. Eleven situations were described for use in applying the problem-solving skills to problems that occur in school settings.

Valuing is one of the goals of the PEACE curriculum and is one of the major responsibilities of the student, the classroom teacher, and the administrator. The leadership in-service pointed out that valuing activities enable students to practice and gain skill in the expression of values, feelings, ideals, and beliefs as well as help students gain ability to resolve problems as they arise and aids them in engaging in decision-making processes. Valuing is one of the biggest concerns today in dealing with the environment and environmental issues. It is important to deal with the problems on a personal level and become aware of the methods of value clarification, problem solving, and decision-making. Therefore, it was necessary that the administrators be exposed to the valuing process. This was accomplished with two activities that were designed to help leaders identify and clarify their own values and valuing strategies.

The in-service training was concluded with a general discussion (question/answer) session. By this time the principals had an opportunity to become familiar with the parameters of the PEACE program, objectives, curriculum, and teaching strategies. Thus, they were able to ask questions and raise pertinent issues that will directly involve their schools and personnel when implementing the program.

In order for teachers to maximize the potential of the P.E.A.C.E. instructional materials, a teacher training manual was developed. This manual was designed so that it could be used by teachers on an individual basis or as a guide for a three-session in-service workshop. Whichever approach is employed, it is felt that the manual is comprehensive enough to insure proper implementation of the PEACE curriculum.

The introduction to the manual is comprised of an abstract of the entire project as well as a section describing the need for this type of program, the goals of the project, the objectives of PEACE, and the philosophy and overview of the curricula materials. The teacher training manual also includes a brief synopsis of the eight instructional modules. Each instructional module contains a minimum of six and a maximum of ten subtopics. Within each of these subtopics, there are at least ten activities in which the students may choose to engage. The summary of each module subtopic identifies the major objective for the group of learning experiences as well as the types of activities and materials included.

The suggested teaching schedule presented in the manual covers a period of ten weeks. Specific suggestions for content, techniques, and methods are included. The first two weeks are devoted to understanding the problem-solving processes and the steps involved in solving a problem. Emphasis is also placed on doing fun, interesting activities that will stimulate students to be motivated to use the modules.

Since the entire program is based on utilization of a problem-solving approach, a significant portion of the teacher manual is devoted to this topic. It is the intent that teachers using these materials will focus on the problem-solving process themselves first in order to understand it, and then work with their students to help them refine their own problem-solving skills. With this as a solid background, the teaching/learning process can then use this problem solving skill to attack local environmental problems.

In order to help teachers understand the problem-solving process, it is necessary to actually go through the process, step by step, and experience both the actual outcomes of each step as well as what happens in the process of determining the outcomes at each point. Through a series of exercises, teachers gain actual experiences in working with problems and the process. Both rational and creative problem-solving processes are applied in doing the exercises.

Environmental problems and issues are much more value problems than technical or social problems. Each of us has a value structure that strongly influences the selection of the various components of our life. In working with the problem-solving process, the values are at work there too. Those issues that a person labels a "problem" directly relate to her/his value structure. According to Raths, valuing is composed of prizing one's beliefs and behaviors, choosing one's beliefs and behaviors, and acting on one's beliefs. These are closely tied to the processes of problem-solving and in dealing with environmental issues. In order to gain an initial insight into the valuing process, the manual provides several suggested activities which individual teachers can pursue. Those teachers involved in the in-service workshop actually participates in the valuing process.

There are as many ways to integrate the P.E.A.C.E. materials into the curriculum as there are persons to do it. A number of examples are offered to give teachers ideas and stimulate their own creativity in their use. The focus in integrating the PEACE modules into the existing curriculum is placed on solving problems, reality within the student's community, all aspects of environmental problems, and active student involvement in the processes. The training manual provides suggestions for integrating the PEACE materials in the following curricular areas: social studies, science, language arts, mathematics, and art.

Both at the mid-point and at the end of the field-testing of the instructional modules, preliminary and final evaluation workshops were held for the participating teachers, principals, and assistant principals. Each teacher completed a written analysis of the PEACE modules and the implementation process as well as discussing positive aspects and areas of concern regarding this environmental education curriculum. (Appendices A and B) These evaluation workshops afforded the teachers an opportunity to share ideas and techniques as well as discuss problems that some were encountering.

The administrative evaluation workshops dealt with the principals' knowledge and understanding of the PEACE program, as well as the typical administrative concerns arising from this unique curriculum. (Appendices Cand D) These sessions with the participating administrators proved not only to be beneficial to the principals in coping with unique situations but also removed several "administrative roadblocks" that were initially hampering a few teachers from implementing this program as effectively as they possibly could.

These evaluation workshops provided some very pertinent information for the university team, that will be extremely helpful in extending the PEACE curriculum to the elementary and senior high schools should this project be refunded. The recurring themes mentioned by both teachers and administrators were (1) high student interest in the program, (2) meaningful learning experiences that the students could identify with and relate to, (3) increased learning by students, (4) decrease in absenteeism, (5) significant decrease in discipline problems, and (6) possibly most important, students identified as "failures" were motivated to learn and were doing so. These as well as other positive comments brought out in the evaluation sessions tended to reinforce the success of the program and the curriculum.

Highlighted below are some of the major accomplishments of the PEACE research, which are suggestive of the educational importance of this undertaking.

1. The theoretical curriculum model that was created for this project has been actually applied in practice. Tangible evidence of the operational success of this model is found in the Instructional, In-service, and Leadership Modules being utilized.

2. One of the most significant accomplishments of the project to date is the direct involvement of students with real-life environmental issues in their own urban community. These participating students are actively involved in a reality-oriented problem-solving process with continued follow-through. As noted in the professional literature, similar projects frequently involve students in artificial, remote, and preliminary steps of problem-solving. Thus, these learning experiences are superficial and short-lived at best. In the current project, however, the students are engaged in identifying actual environmental problems in their everyday lives and pursuing the resolution of these problems through the problem-solving process. Meaningful solutions are being generated by students interacting with adults, community representatives, educators, and governmental agencies. The significance of this accomplishment is that the students are actively involved in designing their own educational experiences.

3. Another important accomplishment is that the modules originally created by the teachers during the summer of 1977 have been edited and revised in such a way as to insure that the creators will recognize them as teacher-designed products. The modules were not modified, edited, and revised by outside "experts" to such a degree that the teachers who originally developed them would feel they were being asked to use so-called "teacher-proof" imported instructional packages. In effect, the users had the major input in developing their own educational tools.

4. The instructional modules developed also lend themselves to a variety of instructional organizational patterns, i.e., self-contained classroom situation, non-graded approach, open education, multi-grade grouping, and individualized approaches. Materials were designed so that students can work independently, in small groups, or large groups while engaged in these problem-solving activities. Consequently, teachers with various styles or various teaching strategies can use these environmental education modules in a variety of teaching situations. These materials also are adaptable to students with varying ability levels.

5. Another accomplishment of the project is the

continuing development of the Memphis State University faculty with regard to environmental education. During the early phases of the project, it has become evident that professors in education responsible for teaching teachers in areas of social studies, language arts, and science need more first-hand experiences in environmental education. The faculty involved in the current project has undertaken individual "Profession Growth". As a result of these initiatives, new activities are being introduced into existing college courses and new courses focusing on environmental issues are being proposed at the university.

6. The project also has increased interest in environmental education by (a) community agencies, (b) educational personnel, (c) local government agencies, (d) county government agencies, (e) state government agencies, (f) federal environmental agencies in the Mid-South region (Tennessee Valley Authority), and (g) utility companies (Memphis Light, Gas, and Water Division). As a result of their involvement in this project, new relationships and interactions have been stimulated among these various groups. The resources of numerous groups working independently are being brought together for the first time in many cases in a cooperative relationship. Thus, PEACE has served as a catalyst for organizing human, financial, and material resources that could be focused directly on environmental education both within the public schools and in the community at large.

7. PEACE also is impacting on the Memphis City School curriculum. It is filling the void in the existing curriculum described in the initial proposal. Until the present, there was very limited content concerning environmental education in either the science or social studies curriculum. Through the present project, there is an organized sequential developmental science/social studies curriculum at the junior high school level that is being employed in the Spring of 1978. Specific instructional strategies and learning activities developed through this project also are being incorporated into the new curriculum currently being employed on a system-wide basis in the Memphis City Schools.

8. One of the most significant aspects of PEACE, as reported by public school personnel, is that it

has the most complete involvement of administrators, curriculum specialists, supervisors, teachers, students and parents that has ever taken place in this large urban school system. This environmental education package was developed cooperatively by persons from all levels of the public school system as well as parents, teachers, and other lay persons interested in this topic.

9. Another outgrowth of this project is the increased knowledge base regarding environmental problems in the community. This comes about by having the various target groups systematically analyze the environmental issues that affect their daily lives. Public school and university personnel, parents, and representatives from community agencies, some working together for the first time as a result of this project, were involved cooperatively.

10. Another outgrowth of this project is the vehicle PEACE provided for the Memphis State University personnel and Memphis City School personnel to collaborate on a cooperative basis. Together these two groups designed, developed, and demonstrated an effective working relationship among the various levels of educators from these two groups. In addition, it was demonstrated through students, parents, governmental units, and community action groups that various segments of the urban population can and do work together in a harmonious fashion when the right setting and atmosphere are created.

It appears that these foregoing achievements reinforce the validity, the efficiency, and the progress that has taken place during the first phase of the work of the personnel involved in P.E.A.C.E. They clearly indicate a need for expanding this environmental education program to other grade levels and possible environmental issues. It has become apparent that there are many other dimensions and issues that need further investigation beyond the scope of the immediate project.

The plan for evaluating the modules provided for assessing the effects of the two types of training modules as well as the eight instructional modules. Several project-developed instruments were used in conducting the evaluation.

Teacher Inservice Module

The instruments utilized to evaluate the teacher inservice module were the Teacher Inservice Module Evaluation Scale, the Environmental Attitude Scale, the Problem Solving Processes Inventory, and the Environmental Action Option Scale. These instruments were used with the teachers who received the formal inservice training as well as those teachers who used the module on an individualized basis. The Teacher Inservice Response Scale was used with only the teachers who receive the formal inservice training.

The Teacher Inservice Module Evaluation Scale contains three parts with 10 items in each part. The first part assesses knowledge of the stated objectives of P.E.A.C.E. The second focuses on the topics that are addressed by the instructional modules. The last part evaluates knowledge of the instructional approaches used in the modules. The instrument was designed to assess the impact of the teacher training on the cognitive behavior of teachers by scoring the number of correct responses to the items.

The Environmental Attitude Scale consists of 20 items that deal with environmental conditions, issues, and potential courses of action in urban communities. The content of the items was derived from the objectives and activities of the instructional modules. Responses are made to the items using a five-point response scale with options ranging from Strongly Agree to Strongly Disagree. Numerical values are assigned to the response options, reversing the polarity of responses for negative items to provide a high positive score and a low negative score.

The Problem Solving Processes Inventory is comprised of two parts. The first part has 10 items stated in the form of questions that deal with the five steps involved in applying the rational problem solving process. The second contains eight items representing activities that are conducted in using the four steps of the creative problem solving strategy. In each part, the respondent marks for each item the response option that corresponds to the step to which the item is related. The two parts are scored to obtain a single score for the instrument.

The Environmental Action Options Scale consists of descriptions of two situations that require decisions which relate to the environment. For each situation, six response choices are provided that include a decision and a reason for the decision. The options for each situation represent the six levels of moral reasoning as described by Kohlberg. The respondent's score is obtained by summing the numerical values corresponding to the levels of the response options chosen for the two situations.

The Teacher Inservice Response Scale contains 17 items related to the formal inservice training of teachers. The items focus on the perceived impact of the inservice sessions as well as the procedures used and conditions under which the inservice is conducted. A five-point response scale, with options ranging from Strongly Agree to Strongly Disagree, is used in responding to the items. Scoring is accomplished by summing the numerical values assigned to the ordered response options.

The strategy for evaluating the teacher training module involved the use of a pretest-posttest design. For the teachers who participated in the formal inservice training, all of the instruments used with this module except the Teacher Inservice Response Scale were applied as pretests at the beginning of the training, first posttests at the end of the training, and second posttests at the end of field testing the instructional modules. The Teacher Inservice Response

Scale was administered as a posttest at the conclusion of the training. For the teachers who only received the teacher's manual module, all of the instruments except the Teacher Inservice Response Scale were used as pretests when the manuals were distributed and posttests when the instructional module field testing was completed.

Leadership Module

The Leadership module was evaluated with the Leadership Module Evaluation Scale, the Leadershp Inservice Response Scale, and the Environmental Attitude Scale. The latter instrument is the same one used with the teacher training module and in described above.

The Leadership Module Evaluation Scale consists of three parts with 10 items in each part. The first part deals with knowledge of the stated objectives of P.E.A.C.E. The second focuses on identifying the types of administrative considerations with which a series of specific questions are related. The third is concerned with knowledge of the instructional approaches used in the modules. The instrument is scored by determining the number of correct responses to the items.

The Leadership Inservice Response Scale has 8 items for evaluating the inservice training of leaders. The items deal with the respondents' perceptions of the impact, procedures, and arrangements of the inservice. The responses are made to the items using a five-point response scale with options ranging from Strongly Agree to Strongly Disagree. Numerical values are assigned to the ordered response options for scoring.

The design used in evaluating the leadership module was a pretest-posttest strategy. With the exception of the Leadership Inservice Response Scale, the instruments were administered as pretests at the beginning of the inservice training and posttests at the conclusion of the training. The Leadership

Inservice Response Scale [illegible] a posttest at the end of the inservice training.

Instructional Modules

The eight instruc[illegible] were evaluated by students using the Module Activity Questionnaire, [illegible] Questionnaire, the Individual module tests, the Environmental Atti[illegible] Problem Solving Processes Inventory, and the Environmental Actio[illegible]. The latter three instruments are the same tests that were use[illegible] teacher inservice module and are described above.

The Module Activit[illegible] is utilized to obtain information and reactions concerning speci[illegible] of the modules, Descriptive information is obtained on the numbe[illegible] involved in the activity, the number and identity of contacts ou[illegible], and the amount of time devoted to the activity. The activity [illegible] a ten-point scale with respect to clarity of the objective and instr[illegible] of the work done, and interest level. The student's opinion is so[illegible] probable interest of other students in the activity. The quan[illegible] are compiled for analyses while the ratings are summarized using des[illegible]istical procedures.

The Student Questi[illegible] signed to obtain the reactions of students to the module activities f[illegible] perspective. The instrument contains ten items representing fact[illegible] the activities and their utilization. The factors include the var[illegible]ies, freedom to choose activities, opportunity to work individu[illegible] small groups, importance and amount of learning with the activities, he[illegible] teacher in doing the activities, interest level of activities, an[illegible] for P.E.A.C.E. activities as apposed to regular coursework. Each facto[illegible] a ten-hour scale. The responses are summarized statistically f[illegible] the questionnaire.

EVALUATION RESULTS

The results of the evaluation of the teacher inservice module, the leadership module, and the instructional modules are presented in this section of the report. The findings are organized according to these three types of modules.

Teacher Inservice Module

The means of the scores on the Teacher Inservice Module Evaluation Scale are presented in Table I for the experimental teachers and control teachers. The number of experimental teachers who completed the instrument was 11 on the pretest, 11 on the first posttest, and 10 on the second posttest. The instrument was completed by 10 control teachers on both the pretest and the posttest.

The experimental teachers revealed a consistent pattern of higher performance on the two posttests than on the pretest for the total score and the three parts of the instrument. Based on the pretest, the increases on the thirty-point scale for the total score were 2.91 on the first posttest and 4.59 on the second posttest. The increases from the pretest to the first posttest were .45 for Part I (knowledge of project objectives), 1.27 for Part II (knowledge of instructional module topics), and 1.18 for Part III (knowledge of instructional approaches used in the modules). Between the pretest and the second posttest, the increases were .88, 2.04, and 1.67 for the three parts, respectively.

Among the control teachers, increases in means occurred from the pretest to the posttest on the total score as well as the three parts of the instrument. The increases between the pretest and the posttest, which were given at the beginning and end of the field testing, were .30, .80, and .60 for Parts I-III, respectively, and 1.70 for the total score. While the pretest means for the control teachers were very similar to the pretest means for the experimental teachers, the experimental teachers scored somewhat

TABLE 1

Means for the Experimental Teachers and the Control Teachers on the Administrations of the Teacher In-Service Module Evaluation Scale

	N	Mean			
Experimental Teachers		Part I	Part II	Part III	Total
Pretest	11	6.82	6.36	7.73	20.91
Posttest I	11	7.27	7.63	8.91	23.82
Posttest II	10	7.70	8.40	9.40	25.50
Control Teachers					
Pretest	10	6.70	6.40	7.70	20.80
Posttest	10	7.00	7.20	8.30	22.50

higher on their first posttest at the end of the training sessions than the control teachers scored at the end of the field test.

The results of the t-test analyses of means for change scores (posttest score minus pretest score) are depicted in Table 2 for the experimental teachers and Table 3 for the control teachers. With respect to the experimental teachers, the total score increase from the pretest to the second posttest was statistically significant at the .05 level of significance. The increase from the pretest to the first posttest approached statistical significance. The increase for Part II of the instrument was statistically significant at the .05 level from the pretest to the second posttest. The t-test analyses for the control teachers revealed that none of the increases achieved statistical significance.

The data and analyses for the responses of the 12 experimental teachers on the Teacher Inservice Response Scale are summarized in Table 4. Based on a possible score range from one to five, the means for the 17 items varied from a low of 3.50 to a high of 4.33. The means for seven of the items equalled or exceeded 4.00 while eight of the remaining ten items were 3.75 or greater. The t-test comparison of the obtained item means and the neutral value of 3.00 on the response scale revealed that 16 of the 17 means were statistically significant at the .05 level. The total score mean was also statistically significant when compared with the neutral total score value of 51.

The highest item mean on the Teacher Inservice Response Scale was for the item dealing with the provision of released time for the inservice participants. Very high means were also obtained for the items relating to the suitability of the facilities used in conducting the inservice; the provision of ample opportunities for the participants to ask questions, engage in discussion, and make comments; the sufficiency of the amount of time

TABLE 2

Summary of data and analyses for change scores of Experimental Teachers on the Teacher Inservice Module Evaluation Scale

	N	Mean	S.D.	t*
Part I				
Pretest-Posttest I	11	.46	1.56	.97
Pretest-Posttest II	10	.70	2.31	.96
Part II				
Pretest-Posttest I	11	1.27	2.57	1.64
Pretest-Posttest II	10	1.90	2.42	2.48
Part III				
Pretest-Posttest I	11	1.18	1.54	2.55
Pretest-Posttest II	10	1.60	1.95	2.59
Total				
Pretest-Posttest I	11	2.91	4.37	2.21
Pretest-Posttest II	10	4.20	4.80	2.77

*t=± 2.262, df=9, level of significance = .05

t=± 2.228, df=10, level of significance = .05

TABLE 3

Summary of Data and Analyses for Change Scores of Control Teachers on the Teacher Inservice Module Evaluation

	N	Mean	S.D.	t*
Part I				
Pretest-Posttest	10	.30	1.06	.90
Part II				
Pretest-Posttest	10	.80	2.25	1.12
Part III				
Pretest-Posttest	10	.60	1.51	1.26
Total				
Pretest-Posttest	10	1.70	3.97	1.35

*t=± 2.262, df=9, level of significance = .05

TABLE 4

Summary of Data and Analyses for Responses of Experimental Teachers on the Teacher Inservice Response Scale

(N=12)

Item	Mean	S.D.	t*
1	4.00	.74	4.69
2	3.75	.62	4.18
3	3.83	.58	5.00
4	3.50	.80	2.17
5	3.92	.90	3.53
6	4.00	.43	8.12
7	3.83	.39	7.42
8	4.08	.51	7.29
9	4.25	.45	9.57
10	3.58	.90	2.24
11	4.33	.65	7.09
12	4.17	.72	5.63
13	3.83	.72	4.02
14	3.92	.79	4.00
15	4.00	.85	4.06
16	3.75	.62	4.18
17	3.75	.62	4.18
Total	66.58	6.36	8.49

*t=+ 2.201, df-11, level of significance = .05

H_o :$\bar{M}$= 3 for items, H_o : U=51 for "Total"

The means are presented in Table 5 for the experimental teachers and the control teachers on the administrations of the Environmental Attitude Scale, the Problem Solving Processes Inventory, and the Environmental Action Option Scale. For these instruments, data were obtained for 11 experimental teachers on the pretest, 11 on the first posttest, and 10 on the second posttest. Ten control teachers responded to the instruments on both the pretest and the posttest. The scores on the Environmental Attitude Scale have a potential range of 20-100 with a neutral value of 60. The experimental teachers obtained means of 79.55, 80.91, and 80.50 on the three consecutive administrations of the instrument, reflecting increases from the pretest of 1.36 on the first posttest and .95 on the second posttest. The control teachers had means of 80.70 on the pretest and 81.00 on the posttest with an increase of .30.

The scores on the Problem Solving Processes Inventory can range from a low of 0 to a high of 18 with an expected random response (or "guessing") score of 4. The means for the experimental teachers were 11.55, 12.46, and 12.30 on the pretest and the two successive posttests, respectively, indicating increases of .91 on the first posttest and .75 on the second posttest. The control teachers obtained means of 10.10 on the pretest and 12.50 on the posttest with an increase of 2.40 on the posttest.

scheduled for the inservice; the clarification of the project goals; the participants' understanding of their role in implementing the instructional modules; and the involvement of school administrators in some parts of the teacher inservice. The only item with a mean that was in the neutral range (i.e., was not not significantly positive) was concerned with the valuing process activity demonstrating the importance of values as they relate to environmental issues. The few comments that were made by the experimental teachers related to spending more time in group discussions, including more

TABLE 5

Means for Experimental Teachers and Control Teachers on the Administrations of the Environmental Attitude Scale, the Problem Solving Processes Inventory, and the Environmental Action Options Scale

Environmental Attitude Scale

Experimental Teachers	N	Mean
Pretest	11	79.55
Posttest I	11	80.91
Posttest II	10	80.50
Control Teachers		
Pretest	10	80.70
Posttest	10	81.00

Problem Solving Processes Inventory

Experimental Teachers		
Pretest	11	11.55
Posttest I	11	12.46
Posttest II	10	12.30
Control Teachers		
Pretest	10	10.10
Posttest	10	12.50

TABLE 5 (Continued)

Environmental Action Options Scale

Experimental Teachers	N	Mean
Pretest	11	9.64
Posttest I	11	10.27
Posttest II	10	9.10
Control Teachers		
Pretest	10	7.60
Posttest	10	9.50

activities from the modules, and allowing more time for the review of the instructional modules and the teacher module.

The possible score range on the Environmental Action Option Scale is from 1 to 12 with a scale median of 7. Among the experimental teachers, the means were 9.64 on the pretest, 10.27 on the first posttest, and 9.10 on the second posttest. These means reflected an increase of .63 from the pretest to the first posttest and a decrease of .54 from the pretest to the second posttest. The control teachers obtained means of 7.60 on the pretest and 9.50 on the posttest, indicating an increase of 1.90. While the control group mean was 2.04 less than the experimental group mean on the pretests for the two groups, the control group had a mean that was .40 larger on the posttests at the end of the field test.

The t-test analyses of the change score means on the Environmental Attitude Scale, the Problem Solving Processes Inventory, and the Environmental Action Options Scale are presented in Table 6 for the experimental teachers and Table 7 for the control teachers. The results of the t-test analyses for the change scores of the experimental teachers indicated that none of means for the comparisons of the pretest and the posttests was statistically significant at the .05 level of significance. The comparisons of the means for the pretest and the first posttest showed positive changes that were more favorable than the changes from the pretest to the second posttest. The results for the control teachers revealed positive changes from the pretest to the posttest. While none of the change score means was statistically significant at the .05 level, the mean for the Problem Solving Processes Inventory approached statistical significance.

Leadership Module

The data for the Leadership Module Evaluation Scale are summarized in Table 8 for the 10 school administrators who completed both the pretest and

TABLE 6

Summary of Data and Analyses for Change scores of Experimental Teachers on the Environmental Attitude Scale, Problem Solving Process Inventory, and the Environmental Action Options Scale

Environmental Attitude Scale	N	Mean	S.D.	t*
Pretest-Posttest I	11	1.36	2.80	1.61
Pretest-Posttest II	10	1.00	5.87	.54
Problem Solving Processes Inventory				
Pretest-Posttest I	11	.91	2.21	1.36
Pretest-Posttest II	10	.80	3.49	.73
Environmental Action Options Scale				
Pretest-Posttest I	11	.64	1.20	1.75
Pretest-Posttest II	10	-.80	2.94	-.86

*t=± 2.262, df=9, level of significance= .05

t=± 2.228, df=10, level of significance= .05

TABLE 7

Summary of Data and Analyses for Change Scores of Control Teachers on the Environmental Attitude Scale, Problem Solving Processes Inventory, and the Environmental Action Options Scale

Environmental Attitude Scale	N	Mean	S.D.	*t
Pretest-Posttest	10	.30	6.32	.15
Problem Solving Processes Inventory				
Pretest-Posttest	10	2.40	3.72	2.04
Environmental Action Options Scale				
Pretest-Posttest	10	1.90	3.81	1.58

*t=± 2.262, df=9, level of significance= .05

TABLE 8

Means for School Administrators on the Two Administrations of the Leadership Module Evaluation Scale

	N	Mean
Part I		
Pretest	10	6.20
Posttest	10	6.00
Part II		
Pretest	10	4.30
Posttest	10	5.00
Part III		
Pretest	10	6.80
Posttest	10	7.30
Total		
Pretest	10	17.30
Posttest	10	18.30

the posttest. The school administrators showed a general pattern of slightly higher means on the posttest than on the pretest. Compared to the pretest, the mean for the total score on the thirty-item instrument increased 1.00. The mean for Part I (knowledge of project objectives) decreased .20 from the pretest to the posttest. Increases from the pretest to the posttest were .70 for Part II (identifying different types of administrative considerations) and .50 for Part III (knowledge of instructional approaches used in the modules).

The t-test analyses of the change score means for school administrators on the Leadership Module Evaluation Scale are reported in Table 9. The results indicated that none of the change score means was significant at the .05 level of significance. The means for the total score and Part II of the instrument had the largest t-test values and most nearly achieved significance.

The summary of the data and analyses for the responses of the 11 school administrators on the Leadership Inservice Response Scale is depicted in Table 10. Based on a response scale with possible values ranging from one to five, the means for the eight items varied from a low of 4.09 to a high of 4.91. The means for half of the items were greater than 4.50 in magnitude. The results of the t-test comparisons of the items means with the neutral value of 3.00 on the response scale indicated that all means were significantly positive at the .05 level of significance. The total score mean of 35.18 was also significantly positive when compared with the neutral total score value of 24.

Several items on the Leadership Inservice Response Scale obtained very positive means. The Participants indicated that the inservice staff personnel were very effective in the conduct of the inservice. The facilities for the inservice were judged as highly suitable for this purpose. The inservice participants felt that ample opportunity was provided for questions, discussion, and comments. The inservice was viewed as beneficial in helping

TABLE 9

Summary of Data and Analyses for Change Scores of School Administrators on the Leadership Module Evaluation Scale

	N	Mean	S.D.	t*
Part I				
Pretest-Posttest	10	-.20	1.03	-.61
Part II				
Pretest-Posttest	10	.70	1.49	1.48
Part III				
Pretest-Posttest	10	.50	1.58	1.00
Total				
Pretest-Posttest	10	1.00	2.00	1.58

*t=± 2.262, df=9, level of significance= .05

TABLE 10

Summary of Data and Analyses for Responses of School Administrators on the Leadership Inservice Response Scale

(N=11)

Item	Mean	S.D.	t*
1	4.09	.30	12.00
2	4.27	.47	9.04
3	4.55	.52	9.81
4	4.91	.30	21.00
5	4.09	.83	4.35
6	4.64	.50	10.76
7	4.09	.70	5.16
8	4.55	.52	9.81
Total	35.18	2.60	14.26

*t=± 2.228, df=10, level of significance= .05

the participants understand the need for their administrative support in implementing the P.E.A.C.E. instructional modules. The inservice was also useful in clarifying the goals of the project and increasing understanding of the implementation procedures and potential problems. Comments that were made related to the preference for the sessions to be conducted on Saturday mornings, the increased involvement of school administrators in project planning, and the use of the Area offices to contact administrators at the school level.

The data and analyses for the scores of school administrators on the Environmental Attitude Scale are presented in Table 11. The 10 school administrators who completed both the pretest and posttest obtained means of 78.90 and 78.40 on the respective administrations of the instrument. These means were highly positive in comparison to the neutral score of 60 for the instrument. The t-test analysis of the change score mean indicated that the slight negative change was not significant at the .05 level of significance.

Instructional Modules

The responses of students on the Module Activity Questionnaire are summarized by module and appropriate analyses are reported in a series of tables. In Table 12, the data are presented on the number of students participating in each of the activities. The responses revealed that more than half (54 percent) of the activities were done by students individually. About one fifth of the activities were done by pairs of students. Among the eight modules, a majority of the activities were individualized for six of the modules.

The frequency distributions for the amount of time spent on the individual activities are reported for the eight modules in Table 13. More than two fifths (42 percent) of the activities were completed in 10 - 19 minutes. More than half of the activities required less than 20 minutes to complete while more than

TABLE 11

Summary of Data and Analyses for Scores of School Administrators on the Environmental Attitude Scale

(N=10)

	Mean	S.D.	t*
Pretest	78.90	--	--
Posttest	78.40	--	--
Change	-.50	6.15	-.26

*t=± 2.262, df=9, level of significance= .05

TABLE 12

Frequency Distributions of Number of Students Participating in Each Activity as Reported on the Module Activity Questionnaire

Module	Number of Students in the Activity 1	2	3-5	6-15	1st.	Total
Urban Environmental Development and	905	139	67	15	36	1,162
Social Services and the Urban Environment	257	172	43	15	2	489
Aesthetics and the Urban Environment	199	14	14	4	13	244
Economics and Politics of Resource Management	622	143	48	28	2	843
Cultural Dynamics and the Urban Environment	703	378	476	59	93	1,709
Responsible Use of Natural Resources-Environmental Ethics	244	133	97	1	1	476
Leisure Activities in the Urban Environment	337	177	312	274	44	1,144
Transportation and Communication and the Urban Environment	162	44	24	3	0	233
Total	3,429	1,200	1,081	399	191	6,300

TABLE 13

Frequency Distributions of Amount of Time Spent on Activities as Reported on the Module Activity Questionnaire

Module	Minutes Spent On Activity 9 or less	10-19	20-29	30-39	40-49	50 or more	Total
Urban Environmental Development and Planning	176	507	212	145	34	104	1,178
Social Services and the Urban Environment	104	170	78	62	22	46	482
Aesthetics and the Urban Environment	29	91	58	23	28	17	246
Economics and Politics of Resource Management	96	390	127	94	31	91	829
Cultural Dynamics and the Urban Environment	206	777	239	154	224	51	1,651
Responsible Use of Natural Resources-Environmental Ethics	48	139	88	60	26	112	473
Leisure Activities in the Urban Environment	114	467	139	204	130	92	1,146
Transportation and Communication and the Urban Environment	23	61	43	25	20	61	233
Total	796	2,602	984	767	515	574	6,238

two thirds were done in less than half an hour. While there was some variations in the distributions among the eight modules, the mode for all distributions was 10 - 19 minutes.

Table 14 presents the data on the out-of-school contacts that were made by students in doing the module activities. For the composite group of activities, the contacts averaged .15 per activity. Amoung the individual modules, the contacts ranged from a high of .27 per activity to a low of .11 per activity. A review of the contacts reported by the students revealed that the contacts included a wide variety of public agencies, institutions, and organizations as well as private businesses and individuals with expertise on the topic being explored.

The data and analyses are summarized in Table 15 for the students' responses on understanding of the objectives of the module activities. Based on a maximum possible score of 10, the means for the eight modules ranged from 7.79 to 9.47. Seven of the means were at least 8.65 or greater in magnitude. The obtained means were compared with the mid-point of the response scale (5.50) using the t-test technique. The results of these analyses revealed that all module means were positive to a highly significant degree.

Table 16 presents the summary of the data and analyses for the item dealing with the understanding of instructions for the activities. Compared to a possible score of 10, the module means varied from a low of 8.23 to a high of 9.49. Means for half of the modules were greater than 9.00. The t-test comparisons of the module means with the scale mid-point of 5.5 showed that the mean for each module was very significantly positive.

The summary of the data and analyses for the item on quality of work done in the activities is depicted in Table 17. The means for the eight modules ranged from 7.93 to 9.38 on the ten-point rating scale. With the exception of

TABLE 14

Frequency Distribution of Cut-Of-School Contacts in Doing Activities as Reported on the Module Activity Questionnaire

Module	No. of Activities	No. of Contacts	Contact per Activity
Urban Environmental Development and Planning	1,175	134	.11
Social Services and the Urban Environment	489	71	.15
Aesthetics and the Urban Environment	246	66	.27
Economics and Politics of Resource Management	847	98	.12
Cultural Dynamics and the Urban Environment	1,743	229	.13
Responsible Use of Natural Resources-Environmental Ethics	481	80	.17
Leisure Activities in the Urban Environment	1,148	253	.22
Transportation and Communication and the Urban Environment	233	42	.18
Total	6,362	973	.15

TABLE 15

Summary of Data and Analyses for the "Understanding of Objective" Item on the Module Activity Questionnaire

Module	N	Mean	S.D.	t*
Urban Environmental Development and Planning	1,166	9.47	1.24	109.33
Social Services and the Urban Environment	489	8.90	1.84	40.86
Aesthetics and the Urban Environment	239	7.79	2.42	14.63
Economics and Politics of Resource Management	847	8.79	1.89	50.66
Cultural Dynamics and the Urban Environment	1,743	8.90	1.77	80.20
Responsible Use of Natural Resources-Environmental Ethics	481	9.15	1.65	48.52
Leisure Activities in the Urban Environment	1,148	8.70	1.83	59.25
Transportation and Communication and the Urban Environment	233	8.65	1.99	24.16

*t=± 1.98, df= 120 or greater, level of significance = .05 Ho:U= 5.50 (midpoint of response scale)

TABLE 16

Summary of Data and Analyses for the "Understanding of Instrutions" Item on the Module Activity Questionnaire

Module	N	Mean	S.D.	t*
Urban Environmental Development and Planning	1,175	9.49	1.16	117.90
Social Services and the Urban Environment	488	9.23	1.45	56.83
Aesthetics and the Urban Environment	242	8.23	2.27	18.71
Economics and Politics of Resource Management	842	8.92	1.89	52.51
Cultural Dynamics and the Urban Environment	1,744	9.06	1.60	92.92
Responsible Use of Natural Resources-Environmental Ethics	476	9.47	1.28	67.67
Leisure Activities in the Urban Environment	1,142	8.83	1.73	65.05
Transportation and Communication and the Urban Environment	234	8.65	2.04	23.62

*t=± 1.98, df= 120 or greater, level of significance = .05 Ho:U= 5.5 (midpoint of response scale)

TABLE 17

Summary of Data and Analyses for the "Quality of Work" Item on the Module Activity Questionnaire

Module	N	Mean	S.D.	t*
Urban Environmental Development and Planning	1,175	9.38	1.15	115.65
Social Services and the Urban Environment	489	8.43	1.85	35.02
Aesthetics and the Urban Environment	242	7.93	2.14	17.66
Economics and Politics of Resource Management	838	8.63	1.80	50.34
Cultural Dynamics and the Urban Environment	1,746	8.85	1.75	79.99
Responsible Use of Natural Resources-Environmental Ethics	472	9.13	1.53	51.55
Leisure Activities in the Urban Environment	1,147	8.43	1.91	51.95
Transportation and Communication and the Urban Environment	233	8.15	2.08	19.45

*t=± 1.98, df= 120 or greater, level of significance = .05 Ho:U= 5.5 (midpoint of response scale)

one module, the means exceeded 8.00 in magnitude. The results of the t-test comparisons of the module means with the mid-point of the response scale indicated that all module means were positive to an extremely significant extent.

The students' responses on the level of interest of the module activities are summarized in Table 18. Based on a ten-point response scale, the means for the modules varied from a low of 7.59 to a high of 9.00. Except for the two extreme values for the module means, the means were within the range of 8.00 - 8.99. The t-test analyses revealed that all module means exceeded the scale mid-point of 5.5 to a degree which was highly significant statistically. The frequency distributions of students' responses concerning the interest of the module activities to other students are reported in Table 19. The composite results for all modules revealed that 82 percent of the responses were "yes." At least 90 percent of the responses were "yes" for the three modules concerned with development and planning, aesthetics, and environmental ethics. The only module receiving less than 80 percent "yes" responses (68 percent) was the module on cultural dynamics which received the largest number of responses.

The data and analyses for the responses to the Student Questionnaire are presented in Table 20 for seventh grade students, Table 21 for eighth grade students, and Table 22 for ninth grade students. The means for the eight items on the instrument revealed that the seventh grade students reacted very positively to the P.E.A.C.E. instructional modules. Based on a ten-point rating scale, the item means ranged from 7.99 to 8.67. In comparison to the seventh grade students, a similar pattern with slightly higher means was found among the eighth grade students where the item means varied from 8.07 to 8.95. The most diverse pattern of means was evident among the ninth grade students with the range being from 7.34 to 9.01. The t-test comparisons of the item means for the separate grade groups using the .05 level of significance revealed that all means were

TABLE 18

Summary of Data and Analyses for the "Level of Interest" Item on the Module Activity Questionnaire

Module	N	Mean	S.D.	t*
Urban Environmental Development and Planning	1,167	9.00	1.88	63.60
Social Services and the Urban Environment	484	8.61	2.13	33.12
Aesthetics and the Urban Environment	239	7.59	2.64	12.24
Economics and Politics of Resource Management	836	8.25	2.50	31.81
Cultural Dynamics and the Urban Environment	1,703	8.09	2.65	33.96
Responsible Use of Natural Resources-Environmental Ethics	471	8.77	2.09	33.96
Leisure Activities in the Urban Environment	1,149	8.20	2.33	39.28
Transportation and Communication and the Urban Environment	233	8.14	2.23	18.07

*t=± 1.98, df= 120 or greater, level of significance = .05 Ho:U= 5.50 (midpoint of response scale)

TABLE 19

Frequency Distributions of Response on Interest of Activities to Other Students as Reported on the Module Activity Questionnaire

Module	Response		
	Yes	No	Total
Urban Environmental Development and Planning	1,042	91	1,133
Social Services and the Urban Environment	387	73	460
Aesthetics and the Urban Environment	213	23	236
Economics and Politics of Resource Management	692	118	810
Cultural Dynamics and the Urban Environment	1,179	560	1,739
Responsible Use of Natural Resources-Environmental Ethics	407	47	454
Leisure Activities in the Urban Environment	930	181	1,111
Transportation and Communication and the Urban Environment	200	19	219
Total	5,050	1,112	6,162

TABLE 20

Summary of Data and Analyses for Responses of Seventh Grade Students on the Student Questionnaire

(N = 119)

Item	Mean	S.D.	t*
1. Variety of activities included in P.E.A.C.E.	7.99	2.47	11.00
2. Freedom to choose activities to do in P.E.A.C.E.	8.52	2.31	14.26
3. Chance to do some P.E.A.C.E. activities individually and in small groups	8.60	2.08	16.26
4. Importance of what is learned in P.E.A.C.E.	8.32	2.27	13.55
5. Amount of learning that takes place in P.E.A.C.E.	8.67	1.71	20.22
6. Helpfulness of the teacher in doing P.E.A.C.E. activities	8.07	2.51	11.17
7. Interest level of P.E.A.C.E. activities	8.27	2.27	13.31
8. Preference for P.E.A.C.E. compared to regular courses in school	8.46	2.37	13.62

*t=± 1.98, df= 118, level of significance = .05 Ho:U= 5.5

TABLE 21

Summary of Data and Analyses for Responses of Eight Grade Students on the Student Questionnaire

(N = 201)

Item	Mean	S.D.	t*
1. Variety of activities included in P.E.A.C.E.	8.07	2.05	13.68
2. Freedom to choose activities to do in P.E.A.C.E.	8.95	1.87	20.13
3. Chance to do some P.E.A.C.E. activities individually and in small groups	8.77	1.82	19.60
4. Importance of what is learned in P.E.A.C.E	8.42	2.03	15.69
5. Amount of learning that takes place in P.E.A.C.E.	8.18	2.35	12.44
6. Helpfulness of the teacher in doing P.E.A.C.E. activities	8.26	2.55	11.81
7. Interest level of P.E.A.C.E. activities	8.21	2.30	12.85
8. Preference for P.E.A.C.E. compared to regular courses in school	8.31	2.35	13.04

*t= ± 1.97, df= 200, level of significance = .05 Ho:U= 5.5

TABLE 22

Summary of Data and Analyses for Responses of Ninth Grade Students on the Student Questionnaire

(N = 175)

Item	Mean	S.D.	t*
1. Variety of activities included in P.E.A.C.E.	8.15	1.99	14.53
2. Freedom to choose activities to do in P.E.A.C.E.	9.01	1.56	24.54
3. Chance to do some P.E.A.C.E. activities individually and in small groups	8.64	1.89	18.12
4. Importance of what is learned in P.E.A.C.E.	8.06	2.11	13.24
5. Amount of learning that takes place in P.E.A.C.E	7.81	2.43	10.37
6. Helpfulness of the teacher in doing P.E.A.C.E. activities	8.13	2.37	12.93
7. Interest level of P.E.A.C.E. activities	7.49	2.47	8.79
8. Preference for P.E.A.C.E. compared to regular courses in school	7.34	3.03	6.62

*t=± 1.97, df= 174, level of significance = .05 Ho:U= 5.5

significantly greater than 5.5, the mid-point of the rating scale.

Although the students at each grade level gave significantly high ratings to all of the items on the Student Questionnaire, the means for some items showed similarities across the grades while other item means indicated considerable variation. Similar ratings were obtained for the items dealing with the variety of activities, the opportunity to do activities individually and in small groups, and helpfulness of the teacher in doing the activities. The eighth and ninth grade students tended to give higher ratings that the seventh grade students did for the item related to the freedom to choose activities. The ninth grade students generally gave lower ratings than the other two grade groups did to the items concerned with importance of what was learned, the interest level of the activities, and preference for the activities as compared to regular courses in school. As the grade level increased, the mean decreased for the item pertaining to the amount of learning that takes place through the activities.

The assessment of the cognitive effect of the modules was determined by analyzing the change scores (posttest score minus pretest score) of the students who used each module. The results of these analyses are reported in Table 23. Among the five ten-item tests, the change score means ranged from .64 to 1.96. The change score means for the two nine-item tests were .48 and 1.16 while the change score mean for the six-item test was .23. The t-test analyses comparing the change score means with a hypothesized mean of 0 revealed that the increases were statistically significant for seven of the eight modules. While the change was positive for the leisure activities module, it did not achieve statistical significance. The pretest and posttest means for the module tests are pretended in Table 24.

The pretest, posttest, and change score means and change score analyses are

TABLE 23

Summary of Data and Analyses for Change Scores on the Module Tests

Module of Number of Test Items	N	Mean	S.D.	t*
Urban Environmental Development and Planning-10	77	1.53	2.45	5.48
Social Services and the Urban Environment-10	96	1.02	2.61	3.83
Aesthetics and the Urban Environment-10	69	.64	2.55	2.08
Economics and Politics of Resource Management-10	51	1.96	2.27	6.17
Cultural Dynamics and the Urban Environment-10	84	.86	2.01	3.92
Responsible Use of Natural Resources-Environmental Ethics-9	138	.48	2.51	2.25
Leisure Activities in the Urban Environment-6	64	.23	2.09	.88
Transportation and Communication and the Urban Environment-9	37	1.16	2.17	3.25

*t=± 2.03, df= 36, level of significance = .05

t=± 2.01, df- 50, level of significance = .05

t=± 2.00, df= 60 - 75, level of significance = .05

t=± 1.99, df= 76 - 105, level of significance = .05

t=± 1.99, df= 106 - 140, level of significance = .05

TABLE 24

Summary of Pretest and Posttest Scores on the Module Tests

Module and Number of Test Items	N	Pretest Mean	Posttest Mean
Urban Environmental Development and Planning-10	77	4.12	5.65
Social Services and the Urban Environment-10	96	6.92	7.94
Aesthetics and the Urban Environment-10	69	4.29	4.93
Economics and Politics of Resource Management-10	51	4.98	6.94
Cultural Dynamics and the Urban Environment-10	84	3.95	4.81
Responsible Use of Natural Resources-Environmental Ethics-9	138	5.64	6.04
Leisure Activities in the Urban Environment-6	64	3.94	4.17
Transportation and Communication and the Urban Environment-0	37	4.00	5.16

depicted in Table 25 for the Environmental Attitude Scale, the Problem Solving Processes Inventory, and the Environmental Action Options Scale. The possible score range for the three instruments are 20 - 100, 0 - 18, and 2 - 12, respectively. The pretest and posttest means for the Environmental Attitude Scale indicated that the means were slightly greater than the mid-point (60) of the potential score range. The relatively small negative change score mean of .92 was statistically significant at the .05 level. While the means were relatively low for the Problem Solving Processes Inventory, the very small change score mean of .08 was not significant statistically. The means for the Environmental Action Options Scale, which were approximately the median of the possible score range, showed a small negative change that was statistically insignificant.

Additional analyses of the change score data for the attitudinal, problem solving, and action options instruments were conducted for specific subgroups of students. Students of teachers who participated in the teacher inservice were classified as experimental while the students whose teachers did not receive the inservice were classified as control. The students were also classified according to grade level (7th, 8th, or 9th). Lastly, the students were classified on the basis of the subject matter of the class in which the modules were used (science or social studies).

The analyses of the change scores for the subgroups of students on the Environmental Attitude Scale are reported in Table 26. The experimental group has a larger decrease than the control group; however, the difference between the means was not statistically significant. Among the three grade groups, there was a significant difference in the change score means. Post-hos analyses revealed that the mean for the ninth grade was significantly less than the means for the seventh and eighth grades. The students in the science classes had a decrease in mean which differed significantly from the slight increase for the

TABLE 25

Summary of Data and Analyses for Pretest, Posttest, and Change Scores of Students on the Environmental Attitude Scale, Problem Solving Processes Inventory, and Environmental Action Options Scale

(N = 465)

		Change Score		t*
Pretest	Posttest	Mean	S.D.	
Environmental Attitude Scale				
66.83	65.91	-.92	7.22	-2.75
Problem Solving Processes Inventory				
6.67	6.59	-.08	3.75	- .46
Environmental Action Options Scale				
5.84	5.47	-.37	4.93	-1.62

*t=± 2.00, df= 120 or greater, level of significance = .05

TABLE 26

Summary of Data and Analyses for Subgroup Comparisons of Change Scores on the Environmental Attitude Scale

Subgroup	N	Mean	S.D.	F	Problem
Experimental	239	-1.20	7.52	.72	.40
Control	226	- .63	6.91		
Grade 7	166	- .62	7.66		
Grade 8	161	.63	6.35	10.45	.00
Grade 9	138	-3.09	7.17		
Science	237	-1.91	7.46	9.17	.00
Social Studies	228	.11	6.84		

social studies classes.

The change score means and analyses for the subgroups are summarized for the Problem Solving Processes Inventory in Table 27. The difference in the mean for the experimental and control groups was not statistically significant. The analyses by grade level revealed that each grade group differed significantly from each of the other grade groups. The eighth grade had an increase of 1.49 while the seventh and ninth grades had decreases of 1.31 and .45 respectively. There was no significant difference in the change score means for the science and social studies classes.

Table 28 presents the change score data and analyses for the subgroups on the Environmental Action Options Scale. A significant difference was found between the slight increase for the experimental students and the decrease for the control students. While the eighth grade students had a small increase and the other two grade groups had small decreases, the differences were not statistically significant. There was no significant difference in the change score means for the science and social studies classes.

SUMMATIVE FINDINGS

The evaluation of the teacher inservice module suggests that the inservice for P.E.A.C.E. is beneficial to teachers. The results show that the inservice teachers become more knowledgeable about the objectives, module topics, and instructional approaches used in the modules. Only slight increases on measures of these variables are evident among teachers who do not receive the inservice training. The inservice training provided for the teachers are viewed very positively by the participants. Both the content of the inservice activities and the arrangements for the training are regarded favorably.

A general pattern of increased scores is evident for inservice teachers and control teachers on measures of environmental attitude, problem solving processes knowledge, and moral reasoning as applied to environmental problems.

TABLE 27

Summary of Data and Analyses for Subgroup Comparisons of Change Scores on the Problem Solving Processes Inventory

Subgroup	N	Mean	S.D.	F	Problem
Experimental	239	- .37	3.71	2.83	.09
Control	226	.22	3.78		
Grade 7	166	-1.31	3.81		
Grade 8	161	1.49	3.31	26.18	.00
Grade 9	138	- .45	3.55		
Science	237	- .24	3.56	.80	.37
Social Studies	228	.07	3.95		

TABLE 28

Summary of Data and Analyses for Subgroup Comparisons of Change Scores on the Environmental Action Options Scale

Subgroup	N	Mean	S.D.	F	Problem
Experimental	239	-.85	4.38	4.69	.03
Control	226	.14	5.41		
Grade 7	166	-.81	5.05	2.41	.09
Grade 8	161	.31	4.88		
Grade 9	138	-.63	4.79		
Science	237	-.25	5.00	.27	.60
Social Studies	228	-.49	4.87		

However, the changes typically are not statistically significant. The scores of the two groups of teachers are highly comparable at the end of the field test of the modules.

The leadership module appears to improve school administrators' knowledge of module topics and instructional strategies although the changes are not statistically significant for the small number of particpants during the short time period of the leadership training. The administrators reach very positively to the leadership inservice. The favorable reactions relate to the substance and conduct of the activities as well as the arrangements for the inservice training. The change in attitude toward the environment is insignificant statistically.

The assessment of the instructional modules by students reveals positive results with respect to several areas. The cognitive assessment indicates that the modules are effective in improving students' knowledge of terminology presented in the modules. Change in comprehension of the steps in selected problem solving processes is insignificant. While change in values related to environmental problem solutions is not significant, attitudes toward the environment appear to be negatively affected possibly because of increased awareness of the environment.

The reactions of students to the modules are highly positive. The students reach favorably to factors such as the freedom to choose activities, the opportunity to study individually and in small groups, the importance of the learning promoted by the modules, and the helpfulness of their teachers. The responses concerning the specific activities are also very positive. Most activities being completed in less than half an hour. The students view the activities as having clearly stated objectives and instructions, promoting high quality of work, and having high interest level for most students.

The overall results of the evaluation indicate that the various modules are effective with teachers, school administrators, and students. Even with the time constraints imposed in field testing the modules, many favorable results were revealed by the evaluative data. A systematic application of the modules during an entire semester or school year could be expected to produce more dramatic impacts on the target audiences.

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APPENDIX A

TEACHER QUESTIONNAIRE

Module Evaluation

1A. Title of the first module you field tested: ____________________

1B. What is your evaluation of the content of the module in 1A?

1C. What is your opinion of the types and variety of activities in 1A? Be specific.

1D. How well were the activities in 1A suited to the ability and maturity levels of the students? Be specific.

1E. Did the activities in 1A facilitate the development and internalization of the problem solving process with the students? Explain.

1F. Could the module in 1A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Teacher Questionnaire

1G. What suggestions do you have for improving the module in 1A?

2A. Title of the second module you field tested: ____________________

2B. What is your evaluation of the content of the module in 2A?

2C. What is your opinion of the types and variety of activities in 2A? Be specific.

2D. How well were the activities in 2A suited to the ability and maturity levels of the students? Be specific.

2E. Did the activities in 2A facilitate the development and internalization of the problem solving process with the students?

2F. Could the molule in 2A be effectively incorproated into your ongoing social studies and/or science program? Why? Why Not? Where?

Teacher Questionnaire

2G. What suggestions do you have for improving the module in 2A?

3. Was there any attitudinal changes in the students regarding any or all aspects of the environment that they encountered on a daily basis? Be specific about the changes you noted.

4. Was there any change on your attitude toward the P.E.A.C.E. program during the field testing period? Explain.

5. Describe the type(s) and amount of interaction you have had with your school administration regarding P.E.A.C.E. during the field testing period.

6. Describe the parent feedback you have had from the P.E.A.C.E. program. Be specific as possible.

7. In your opinion what are the most positive aspects of the P.E.A.C.E. program?

TEACHER QUESTIONNAIRE
SUMMARY

1A. Title of the first module you field tested: Resource Management

1B. What is your evaluation of the content of the module in 1A?

Control
- -needs more activities
- -activities were unique in that they varied in content and seemed to present a scope of the entire module

Experimental
- -very good
- -very interesting to the students and teacher
- -gives opportunities for students to learn and try to solve problems that confront them each day
- -gives knowledge of surrounding that they have not had a chance to explore

1C. What is your opinion of the types and variety of activities in 1A? Be specific.

Control
- -activities are related to individual instruction
- -activities seem to be more concerned with social studies and less related to environmental science

Experimental
- -excellent
- -too many games
- -very good
- -varieties are outstanding
- -self explanatory
- -need more lab work

1D. How well were the activities in 1A suited to the ability and maturity levels of the students? Be specific.

Control
- -well suited for 9th grade level
- -mostly well suited for most students

Experimental
- -some students considered themselves too sophisticated to work on some of the activities, but actually were not.
- -reading level above students

1E. Did the activities in 1A facilitate the development and internalization of the problem solving process with the students? Explain.

Control
- -Yes, certain environmental related problems were developed from this module.

Teacher Questionnaire Summary

Experimental
-after two weeks, the students seemed to discard the problem solving method
-students learned that are many ways to attack and solve a problem

1F. Could the module in 1A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Control
-Yes, these activities can be used especially with units on ecology
-Yes, some of the activities can be used with an earth or life science program and to teach students to develop science fair projects and how to do extended research projects

Experimental
-definitely useful

1G. What suggestions do you have for improving the module in 1A?

Control
-several activities may need to be eliminated or rewritten to relate more to subject matter or so that they may be understood better

Experimental
-a session to teach students how to meet the public and get information from them
-revise teachers' book with a table of content
-more lab work, less films

****

1A. Title of the first module you field tested: Social Services

1B. What is your evaluation of the content of the module in 1A?

Control
-contained activities that made students aware of social problems and social agencies that available to them and their community
-most activities were to advanced for junior high students

Experimental
-excellent
-simple and familiar to any student
-relevant and necessary to the health and well-being of the community
-good problem solving opportunities

1C. What is your opinion of the types and variety of activities in 1A? Be specific.

Control
-good variety of activities
-activities seem to direct the students to accomplish the stated objectives

Experimental
-needs more games, puzzles, etc., that require less preparation time

Teacher Questionnaire Summary

1D. How well were the activities in 1A suited to the ability and maturity levels of the students? Be specific.

Control
-reading level too high; vocabulary too advanced

Experimental
-good
-should be less activities that require reading comprehension
-well suited
-interesting and within the capabilities of students

1E. Did the activities in 1A facilitate the development and internalization of the problem solving process with the students? Explain.

Control
-to some extent
-opened new areas of thinking
-forced students to think in a creative manner

Experimental
-sharpened problem-solving skills
-made students aware of many things they had taken for granted
-students showed more appreciation and concern
-students eager to pursue their chosen problems

1F. Could the module in 1A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Control
-could be used in social studies
-could be used in a social services group

Experimental
-geared toward social studies
-could be taught along with the unit on ecology
-plan to use a great deal of it next year in social studies and American history

1G. What suggestions do you have for improving the module in 1A?

Control
-shorter time period
-simple vocabulary
-spend more time with background information about social problems

Experimental
-only top of card should be color coded, so that actual activity could be Xeroxed and given out
-laminate all cards

****

1A. Title of the first module you field tested: Transportation and Communication

Teacher Questionnaire Summary

1B. What is your evaluation of the content of the module in 1A?

Control
-activities were very good
-student became more aware of various means of transportation and communication
-content was informative and provided opportunities for students to explore means of analyzing problems and assets of transportation

Experimental
-content was broad and specific
-adequate for the purpose of increasing student awareness of environmental concerns
-very well organized and challenging for students

1C. What is your opinion of the types and variety of activities in 1A? Be specific.

Control
-some activities were too simple and similar
-fair
-very good, but could have made provision for more activities which involved more research

Experimental
-some too activities too vague
-good variety
-students accepted well and did appreciate such

1D. How well were the activities in 1A suited to the ability and maturity levels of the students? Be specific.

Control
-fair, because of the problem of understanding instructions

Experimental
-most were well suited
-some were not accepted by the slow learner, merely becouse he/she could not read

1E. Did the activities in 1A facilitate the development and internalization of the problem solving process with the students? Explain.

Control
-students used the problem-solving method to work on different problems
-students were motivated by several of the activities
-some activities were too elementary for the more advanced level students

Experimental
-as the program progressed, students did seem to be able to solve problems in a more self-directed manner
-not sure

Teacher Questionnaire Summary

1F. Could the module in 1A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Control
-yes, it could be used as supplementary work
-yes, it could be used with some of the chapters in the textbook
-yes, especially the unit involving hydrocarbons and automobile efficiency

Experimental
-possibly
-many activities could be ideal for high achievers who are ready for independent study beyond the full class requirement
-yes, mechanization of machines

1G. What suggestions do you have for improving the module in 1A?

Control
-take out similar activities
-make the range of the module activities extend to cover the above average students
-a special team should be selected to inspect all modules
-make provision for reference articles to be collected so that they can be readily available

Experimental
-many activities are written in ineffective language for children
-make sure all examples are included

****

1A. Title of the first module you field tested: Leisure Activities.

1B. What is your evaluation of the content of the module in 1A?
CONTROL
-Simple and on level of student
-very good with some modification for use by seventh graders
-some of the activities were too elementary

Experimental
-above reading level taught to students
-the variety of content was not sufficient to consume four weeks
-students found it interesting and enjoyed doing the activities

1C. What is your opinion of the types and variety of activities in 1A? Be specific.
CONTROL
-students could not operate in the community with adult people efficiently
-appropriate and relavent to student environment
-some activities too short
-most activities did hold students attention

EXPERIMENTAL
-variety was good
-redundancy in the activities

Teacher Questionnaire Summary

1D. How well were the activities in 1A suited to the ability and maturity levels of the students? Be specific.

CONTROL

-good--the activities ranged from very simple to more complex level--but not too difficult for group activities

-some activities too advanced, but students enjoyed the freedom to work

EXPERIMENTAL

-activities were above the reading level of most students

-activities corresponded well to ability and maturity levels of students

-no major problems with activities

1E. Did the activities in 1A facilitate the development and internalization of the problem solving process with the students? Explain.

CONTROL

-made students aware of things they had taken for granted

-students became aware of the importance of problem solving

-yes--the students enjoyed working and building projects

EXPERIMENTAL

-there was very little carry over between the initial problem solving material and the activities or problem study

-yes

-some of the activities seemed to relate more to problem solving than others

1F. Could the module in 1A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

CONTROL

-yes--not as a whole class period, but as a project

-it would be a good diversion, the every day routine

- could be used as an extra activity after having completed a difficult assignment

EXPERIMENTAL

-the debates over Resource management could work into an examination of the political process

-could be taught once a week--students would enjoy it

-could contribute to present program

1G. What suggestions do you have for improving the module in 1A?

CONTROL

reduce terminology level

-work up a form that would fit most subjects or problems

-more step by step process rather than a time limit

EXPERIMENTAL

-material should be more on reading level of students

-streamline it--cut it down on the number of activities

-more time needed to make any valid reccommendations

Teacher Questionnaire Summary

2A. Title of the second module you field tested: Cultural Dynamics

2B. What is your evaluation of the content of the module on 2A?

CONTROL

-excellent! reinforced previosly taught subjects

-the students were involved in sharing personal experiences, thoughts, and beliefs

-good, but time limit--access to library only one hour

-too difficult for students

EXPERIMENTAL

-time spent on this module was more productive

-content not very deep--it either called for personal opinion or superficial observation

-above reading level of students

2C. What is your opinion of the types and variety of activities in 2A? Be specific.

CONTROL

-possibly appropriate, but students lacked needed resources

-variety--broad

-offered the students an opportunity to interact with people of different races

EXPERIMENTAL

-the topics changed, but the format was the same in many activities--responses were often similar

-types and varieties were very good

2D. How well were the activities in 2A suited to the ability and maturity levels of the students? Be specific.

CONTROL

-students related quite well. They discussed many of the activities in depth

-too advanced--above reading level of students

EXPERIMENTAL

-students did quite well with these activities

-activities required a greater level of maturity than some students possessed

-above reading level of students

2E. Did the activities on 2A facilitate the development and internalization of the problem solving process with the students?

CONTROL

-yes, some of the activities

EXPERIMENTAL

-the connection between the activities and the problem solving process was strained.

-the students were able to use problem solving techniques with more of the activities

-yes

2F. Could the module in 2A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

CONTROL

-yes--Units 1. Who am I? 2. The Family 3. Peer Groups

-yes--with teacher's discretion and modification of activities

EXPERIMENTAL

-yes--would choose to use it a few days each six weeks rather than in one large time block

-may be useful in studying culture and cultural differences

-taught once a week

2G. What suggestions do you have for improving the module in 2A?

CONTROL

-modification of activities to student levels

EXPERIMENTAL

-streamlining is needed extreemely in this case

-material should be written to reach most of the students

****

2A. Title of the second module you field tested: Aesthetics

2B. What is your evaluation of the content of the module in 2A?

Control

-attractive, but students showed a lack of interest because of lack of exposure to aspects or problems involved

-very good

-more interesting than first module

Experimental

-very good

2C. What is your opinion of the types and variety of activities in 2A? Be specific.

Control

-well developed

-sufficient time was not available to collect needed material

-some were unreasonable; asking students to contact outside resources

-types were excellent, but variety was limited

Experimental

-appropriate and useful for group participation

-not enough

2D. How well were the activities in 2A suited to the ability and maturity levels of the students? Be specific.

Control

-arranged well for different levels of students

-good

-more on students level than first module

Experimental
-highly accepted

2E. Did the activities in 2A facilitate the development and internalization of the problem solving process with the students?

Control
-to some degree; more students showed lack of interest than in first module
-yes

Experimental
-contributed must to aesthetic sensitivity and awareness of students
-yes

2F. Could the module in 2A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Control
-yes, some activities could be used
-yes, during the first of each semester

Experimental
-yes, because of group nature of activities

2G. What suggestions do you have for improving the module in 2A?

Control
-provide a basic workshop for teachers
-add more down-to-earth activities for children reading on lower levels

Experimental
-eliminate some activities

****

2A. Title of the second module you field tested: Environmental Ethics

2B. What is your evaluation of the content of the module in 2A?

Control
-module covered the topic of the environment and problems that the community faces relating to it's environment
-very interesting, especially to a science class
-very good; does not need improving
Experimental
-activities could have been separated into long-range and short-range
-impossible to do many of the activities due to time and space elements

2C. What is your opinion of the types and variety of activities in 2A? Be specific.

Control
-better suited for the type of class I was teaching than first module
-activities directly related to problems in the community
-many activities too complicated for a classroom situation

Teacher Questionnaire Summary

Experimental
-good variety
-too many activities called for research outside the the classroom

2D. How well were the activities in 2A suited to the ability and maturity levels of the students? Be specific.

Control
-all students could do library reference work, but had difficulty interviewing people
-activities at a good level

Experimental
-well suited

2E. Did the activities in 2A facilitate the development and internalization of the problem solving process with the students?

Control
-some activities required the student to apply the problem solving process in order to complete the activities
-yes

Experimental
-the students that took the project seriously seemed to sharpen their problem-solving skills
-some of the activities

2F. Could the module in 2A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?

Control
-yes, it was pertinent to my subject
-yes, in science

Experimental
-in science program, the module was an asset

2G. What suggestions do you have for improving the module in 2A?

Control
-make activities simpler
-make sure the module is used by a class with access to lab equipment

Experimental
-develop a list of field trips and speakers that would relate to module
-reduce research activities

****

2A. Title of the second module you field tested: Development and Planning

2B. What is your evaluation of the content of the module in 2A?

Control
-may be too advanced for low reading groups
-not easily adopted to science classes

Teacher Questionnaire Summary

Experimental
-content too advanced for students
-not up to standard of first module

2C. What is your opinion of the types and variety of activities in 2A? Be specific.

Control
-very good; varied
-too many activities dealing with library research

Experimental
-best module

2D. How well were the activities in 2A suited to the ability and maturity levels of the students? Be specific.
CONTROL
-on level
-students could comprehend and work the problems with little instruction from teacher

EXPERIMENTAL
-instructions were difficult to follow for many
-many were below level--collect trash, draw posters, etc.
-some students found this one dull

2E. Did the activities in 2A facilitate the development and internalization of the problem solving process with the students? Be specific
CONTROL
-yes--certain problems of ghetto living were developed as a result of these activities

EXPERIMENTAL
-planning could by equated with "thinking ahead". In this way the crux of the process is the primary activity
-no
-to a small degree--many of the activities were so similar that there was not the challange of difference

2F. Could the module in 2A be effectively incorporated into your ongoing social studies and/or science program? Why? Why not? Where?
CONTROL
-to a small degree--in dealing with man in society of our science text
-if time permits--this is a full six weeks work

EXPERIMENTAL
-to a small degree--
-students could probably design better activities
-yes--planning environmental systems is after all the ultimate goal of the material collected in science

2G. What suggestions do you have for improving the module in 2A?
CONTROL
-rewrite activities with less library reference
-none after a better introduction in 1A of meeting the public

Teacher Questionnaire Summary

EXPERIMENTAL
-include films in modules
-complete by including addresses with data sources
-combine or delete some of the activities that are so similar
-add some other creative or thought provoking activities
-eliminate some of the games

* * *

3. Was there any attitudinal changes in the students regarding any or all aspects of the environment that they encountered on a daily basis? Be specific about the changes you noted.

CONTROL
-students became more aware of the appearance of their surroundings
-became more aware of community resources
-found that the people in different agencies were helpful and cooperative
-some students learned to work on their own for the first time
-students noted the need for improvement upon environmental problems
-very little attitudinal changes
-some students took the cleanliness and availability of many recreational facilities for granted
-many things previously taken for granted are now appreciated by students
-none--students just went progressing right along
-students were made more aware of pollution and litter problems

EXPERIMENTAL
-yes, there was a broadening of their concept of environment
-many realized for the first time the human element of environment
-very little
-students were more concerned about their environment
-some students lacked interest

4. Was there any change in your attitude toward the P.E.A.C.E. program during the field testing period? Explain.

CONTROL
-enjoyed the program
-learned a lot
-more interest was shown toward the last of the program
-no
-yes--I became frustrated because I could not provide the proper materials needed
-yes--with a period of good training of instructors, this coud be a very effective approach to teaching and would let the community see what is going on in schools

EXPERIMENTAL
-yes--skeptical at first, but grew to like it
-got tired of it--ten continuous weeks was too much
-sparked concern of whether the program was meeting the needs of the S.S.program and were the students being benefited in the right way
-liked the program and plan to use it again

- -the more I understood it the more I liked it
- -I found it an enlighteding experience for myself and students
- -I had the opportunity to interact on a one-to-one basis with students

5. Describe the types and amount of interaction you have had with your school administration regarding P.E.A.C.E. during the field testing period.

CONTROL

-a little--they have been supportive if approached, but had not shown a lot of interest otherwise
-very little contact
-discussed what project was about
-principal was very cooperative about children taking feild trips
-principal was in favor of project, but did not visit class very often--students seemed to appriciate his presence whenever possible
-principal visited class often to see what interesting reports and projects he could enjoy
-none

EXPERIMENTAL

-assistant principal has visited class several times
-administrators were very cooperative--about a 40% daily interaction rate
-none
-discussed field trip plans
-very little interaction; however, what interaction there was has been supportive of P.E.A.C.E.
-any time, very helpful and cooperative
-full support

6. Describe the parent feedback you have had from the P.E.A.C.E. program. Be specific as possible.

CONTROL

-parents have been helpful in getting needed information
-have been available for trips
-no direct response--students say that parents attitudes seemed positive
-none
-some wanted to know how the grading system worked

EXPERIMENTAL

-no parent feedback
-a few parents participated
-favorable, they seemed to like the individualized and small group activities
-little to no parent feedback

7. In your opinion what are the most positive aspect of the P.E.A.C.E. program?

CONTROL

-students have become aware of community agencies and facilities and have learned to interact with persons in those agencies
-the color coded cards were good
-problems were defined
-helped students to become aware of their surroundings

Teacher Questionnaire Summary

- -the problem solving process was helpful to all
- -the sharing of ideas was beneficial for students
- -awareness of management of city and urban problems
- -an opportunity to self expression
- -individualized activities that are motivative in many aspects

EXPERIMENTAL

- -opportunity for creative expression from students
- -good chance to know students
- -people working with other people to solve problems
- -activity centered--interesting
- -many of the modules involved the community in a positive way
- -providing activities that stimulate interest in the environment
- -it is a public affirmation of the concern of the public school system for environmental quality
- -developed better group interaction
- -developed the slow learner
- -students awareness of environmental problems gives them a chance to do something about them
- -the coverage of the problem solving process
- -the variety it offered to the curriculum

APPENDIX B

1. Organization of the modules: STRENGTHS	WEAKNESSES	SOLUTIONS
2. Implementation of the program STRENGTHS	WEAKNESSES	SOLUTIONS
3. Pupil interest in the program and materials STRENGTHS	WEAKNESSES	SOLUTIONS

4. Pupil ability to interact with the materials: STRENGTHS	WEAKNESSES	SOLUTIONS
5. Problem solving aspects of the program: STRENGTHS	WEAKNESSES	SOLUTIONS
6. Classroom management: STRENGTHS	WEAKNESSES	SOLUTIONS

7. Administrative cooperation: STRENGTHS	WEAKNESSES	SOLUTIONS
8. Access to and cooperation of community resources: STRENGTHS	WEAKNESSES	SOLUTIONS
9. Additional comments and discussion: STRENGTHS	WEAKNESSES	SOLUTIONS

APPENDIX C

ADMINISTRATIVE QUESTIONNAIRE

1. In general, describe your attitudes toward field testing new programs in your school?

2. How do you think teachers should be selected to participate in field testing of new materials?

3. To what extent do you think principals should be involved in instruction?

4. Are you willing to attend leadership sessions related to programs being tested in your school? Why or Why not?

ADMINISTRATIVE QUESTIONNAIRE SUMMARY - SATURDAY, APRIL 22, 1978

1. In general, describe your attitudes toward field testing new programs in your school?

   -very willing
   -welcome new programs
   -should have a full year of implementation
   -willing when teachers are interested in the program
   -willing if the program has merit
   -positive because it is directly related to problem solving in the community
   -initially negative attitude due to lack of understanding of the program--now very positive
   -positive because it provides a service to improve education
   -fine if total school is not disrupted
   -OK if it is organized and supervised
   -administrators must be familiar with the program

2. How do you think teachers should be selected to participate in field testing of new materials?

   -cooperative effort of principals, consultants, and sponsor
   -class control
   -background subject matter
   -willingness to participate
   -respect of students
   -teachers should volunteer after reviewing program
   -some teachers should be selected by principal to insure a good cross section

3. To what extend do you think principals should be involved in instruction?

   -should be major concern of principals
   -be aware of the objectives of the program
   -be aware of the materials
   -sensitive to the needs of the teachers
   -should hold meetings to determine direction in which program is moving
   -should support the academic program
   -should be top priority
   -appropriateness of content should be the responsibility of the consultant
   -very little
   -should be familiar with the academic program

4. Are you willing to attend leadership sessions related to programs being tested in your school? Why or why not?

   - Yes--they are learning sessions
     - to have input into program modification
     - imperative to be familiar with programs in your school
     - to identify new programs that will motivate students
     - field testing of new programs should not be permitted unless informative sessions are provided for administrators
     - to be able to select appropriate teachers the principal needs to know about the program being field tested

5. How much advance notice do you feel is necessary for your participation in leadership sessions for programs being field tested in your school?

   - one semester
   - at least one week because of so many other professional commitments
   - the summer prior to the new term
   - one week to 10 days
   - at least two weeks

6. When is the most convenient time for leadership sessions related to programs being field tested in your school to be scheduled?

   - afternoons of school days
   - anytime but Saturday
   - Saturday mornings
   - after school or weekends
   - summer

7. How can you assist teachers in your building who are field testing new materials?

   - supplying necessary materials
   - supporting teachers and program
   - flexibility in scheduling
   - released time for in-service
   - cooperation
   - share ideas with teachers regarding the program
   - assist with any administrative concerns

8. Additional comments:

   - excellent program--should be continued
   - teachers, students and parents feel P.E.A.C.E. is a very valuable program
   - concern that there are some participating schools where administrators have not participated in any orientation meetings

APPENDIX D

ADMINISTRATOR QUESTIONNAIRE

Program Evaluation

1. What role should administrators have in the P.E.A.C.E. program?

2. Discuss your impressions of the P.E.A.C.E.program.

3. If this program were to used in your school again, what would you, ad an administrator, do differently?

4. How should administrators be involved with the instructional modules?

5. How do you anticipate that the P.E.A.C.E. program materials will be used in your school next year?

Administrator Questionnaire

6. What do you plan to do to make the P.E.A.C.E. program more accessable to more teachers and students next year?

7. What have you done to inform parents about the P.E.A.C.E. program (newsletters, flyers, memos, etc.)?

8. How much impact do you believe the P.E.A.C.E. program has had on your school, teachers students, parents, and community?

9. If you had a choice, would you want your school to be involved in the P.E.A.C.E. program again?

P.E.A.C.E. Evaluation Workshop
May 20, 1978

Administrative Questionnaire Summary

1. What role should administrators have in the P.E.A.C.E. program? Be specific.

-general knowledge of the P.E.A.C.E. objectives
-awareness of teacher interest in participating in program
-supervise program by use of classroom visitations
-personal involvement in program
-demonstrate a positive attitude toward the program
-coordinate P.E.A.C.E. curriculum with general academic program
-participate in teacher selection
-assist in implementation of program
-participate in selection of classes that will be involved in program

2. Discuss your impressions of the P.E.A.C.E. program?

-good potential for success
-lends itself to multi-interest teaching/learning process
-very beneficial to students
-can have a tremendous impact on the school community
-curriculum content relevant to the students' immediate environment
-excellent student activities
-a unique approach
-should be expanded to other grade levels
-should be adopted by the city school system
-needs to be revised to be more suitable for classroom use--too many activities take place outside traditional classroom structure
-small group activities outside the classroom can be disruptive if the number of groups involved become too large
-excellent way to teach youngsters about their own environment
-provides a vehicle for students to involve themselves in the community
-program thrust is essential to modern living

3. If this program were used in your school again, what would you, as an administrator, do differently?

-more advanced and closer planning with teachers
-make other teachers that are not involved in the program aware of its benefits
-be better informed as to the program objectives
-more contact with teachers via classroom visitations and observations
-assist in expanding the program
-make arrangements to free the teachers involved so that they could take more field trips with the youngsters

4. How should administrators be involved with the instructional modules?

-provide needed materials for teachers
-supporting role
-review modules with teachers
-be involved with the integration of the instructional modules with the school's total curriculum
-help plan the modules around the needs of the community

5. How do you anticipate that the P.E.A.C.E. program materials will be used in your school next year?

-incorporate the P.E.A.C.E. program into the regular curriculum throughout the entire year as it compliments and supports the regular social studies and science programs
-teachers will continue with the program for another year
-share the P.E.A.C.E. program during in-service session
-expand the program to selected staff members
-supplement regular classroom activities on a limited basis

6. What do you plan to do to make the P.E.A.C.E. program more accessible to more teachers and students next year?

-use the field test teachers to help other teachers to become involved
-devote a faculty meeting to the P.E.A.C.E. program
-make modules available to all teachers

7. What have you done to inform parents about the P.E.A.C.E. program (newsletters, flyers, memos, etc.)?

memo sent to parents
-article in the student newspaper
-students send memos to parents
-program written and discussed in the superintendent's publication
-newsletter sent out
-discussed at PTA meeting

8. How much impact do you believe the P.E.A.C.E. program has had on your school, teachers, students, parents, and community?

-many students who appear to be under achievers in the regular class setting, seem to generate more enthusiasm, interest, and learning in the P.E.A.C.E. program
-the program has had a positive affect on the part of the school community
-students motivated beyond what they thought they were capable of doing
-parents and community were well pleased with the program
-very observable change in students regarding their own environment
-unsolicited parents' comments endorsing the program

9. If you had a choice, would you want your school involved in the P.E.A.C.E. program again?

- -the P.E.A.C.E. program warrants whatever effort can be done to continue its operation
- -program should be expanded to the fifth and sixth grade level
- -teachers that were involved this year will help implement the program on a broader scale next year

APPENDIX E

MEMPHIS STATE UNIVERSITY

Memorandum

To: P.E.A.C.E.

From: Dr. Duane M. Giannangelo, Associate Director
Project P.E.A.C.E.

Subject: Community Resource Visits

Date: July 26, 1978

Thursday afternoon, July 28, has been set aside for you to visit with resource people in the Memphis area. The purpose of these meetings is to afford you the opportunity to acquire additional information pertaining to the module you are developing. The time period from 1:00 - 3:30 p.m. has been allocated for your discussions.

The following is a list of agencies, contact persons, and addresses for the eight instructional module groups.

A. URBAN ENVIRONMENTAL DEVELOPMENT AND PLANNING

Community Development
Mr. Jim Shippers
61 Adams
Ground floor of Pilot House Motel

B. SOCIAL SERVICES AND THE URBAN ENVIRONMENT

Human Resources Development Institute
Mr. Willis
2881 Lamar
Room 116
Located at Lamar and Dunn

C. AETHETICS AND THE URBAN ENVIRONMENT

City Beautiful Committee
Mrs. Mary Margaret Ledbetter
Mrs. Marge Hall
Mr. Plato Touliatos
Trees by Touliatos Nursery
2018 Brooks Road East
East of Airways on Brooks

D. **ECONOMICS AND POLITICS OF RESOURCE MANAGEMENT**

Memphis Light, Gas, and Water Conservation Information
Mr. John Mashaw
MLGW Building
Room 363

E. **CULTURAL DYNAMICS AND PLURALISM AND THE URBAN ENVIRONMENT**

Vollentine - Evergreen Neighborhood Association
Ms. Margaret Dichtel
Family Services
161 Jefferson - 4th Floor

F. **RESPONSIBLE USE OF NATURAL RESOURCES - ENVIRONMENTAL ETHICS**

Geological Survey - Water Resources Division
Mr. Bill Parks
Federal Office Building
Room 826

G. **RECREATIONAL AND CULTURAL USE OF THE URBAN ENVIRONMENT**

Memphis Park Commission
Mr. Herald McKinney
2599 Avery
East Entrance

Professor Melvin Humphreys, Associate Professor of Recreation
Department of Health, Physical Education, and Recreation
Old Field House
Memphis State University

H. **TRANSPORTATION, COMMUNICATION, AND THE URBAN ENVIRONMENT**

Transportation and Traffic Division, Memphis City Government
Mr. Edward Boyd
City Hall
Room 616

APPENDIX F

P.E.A.C.E. RESEARCH GRANT

Roger V. Bennett,
Director

Basic Framework for All Instructional Modules

1. Global Objectives

a. Generally these overreaching statements will be the same for all modules.
b. They will be broadly stated, rather than written in behavioral terms.
c. Collectively, they will specify the skills, attitudes (values/valuing processes) and content considered fundamental, e.g., the cognitive skill of problem solving.
d. Specific criteria will be established to evaluate these statements, e.g., (1) comprehensiveness, (2) consistency, (3) functional, etc.

2. Specific Objectives

a. These operational statements must be derived from the global objectives.
b. These statements do not have to be translated into behavioral terms, but must be specific enough to give meaningful direction to teachers.
c. Valuing processes must be definitely stated and the values to be stressed clearly identified.

3. Core Content

A body of knowledge considered essential to each module must be identified, including fundamental concepts, generalizations, supportive details, and other developmental ideas.

4. Instructional Strategies

a. Several alternative strategies must be described so teachers can select and modify interactive patterns within their classrooms to meet the needs of their particular students. Examples range along the continuum from exposition to inquiry.
b. Strategies should maximize cooperative, "hand-on" experiences that involve a variety of people in different learning environments beyond the classroom.

5. Learning Activities

a. A reservoir of activities for learners must be identified for every module.
b. These activities should be evaluated in terms of such criteria as (1) appropriateness, (2) readability, (3) transferability, etc.
c. Emphasis should be upon self-direction and self-evaluation by the students as they pursue these activities.
d. Activities need to be classified according to perceived value, e.g., (1) most valuable, (2) somewhat valuable, (3) useful, but not essential.
e. Learning activities should encourage students to experiment with higher levels of moral reasoning.

6. Evaluative Techniques

a. A variety of techniques should be described in each module, e.g., observation, tests, performance activities, antecedent records, audio recording, interviews, etc.
b. Minimum level of stisfactory achievement should be described as guidelines for evaluation, not as norms for passing or failing.
c. Continuous progress, regardless of performance level, should be emphasized.
d. Student self-evaluation activities must be systematically planned.

7. Resources Component

a. Actual games, books, materials, and people that can be used during the implementation of the module must be identified.
b. Bibliographies need to be printed.
c. Resource contacrs need to be stipulated for all modules, i.e., who to call? Telephone numbers, addresses, other essential information.
d. All materials must be inventoried with a brief description of the nature of the materials included in each model.

APPENDIX G

P.E.A.C.E. RESEARCH GRANT

Roger V. Bennett,
Director

Development of Modules

Listed below are several fundamental questions that were discussed and will need continuous evaluation during the process of developing the instructional modules for P.E.A.C.E.

1. What constitutes a module?

   a. What are the essential components that must be built into each module?
   b. Will all modules be basically the same?
   c. How will the modules be evaluated? Revised? Utilized? What criteria will be used to evaluate their effectiveness? Who will make these judgements? When?

2. SAC (Skills, Attitudes, Content)

   a. Are these components different from the stated global objectives or are they embedded in each objective?
   b. Should distinctions be made among skills, attitudes, and content objectives, or can one objective include more than one of these elements?
   c. What are the differences amont attitudes, awareness, values, and moral reasoning?

3. What objectives need to be prepared?

   a. Will specific objectives be written in behavioral terms?
   b. How will specific and global objectives be related?
   c. What roles will parents, students, community representatives play in developing these objectives?

4. What "Core Content" should be incorporated in the module?

   Will there be a generic knowledge base that all students must acquire? e.g., fundamental priciples, generalizations, basic concepts, essential supportive details?

VALUES

5. What values and valuing processes will be developed through the instructional modules?

   a. What levels of moral reasoning will be built into the materials used by the students?
   b. Which specific values will be taught to the students?
   c. How will the valuing process be taught?
   d. What role will parents and community representatives have in resolving these issues?

ACTIVITIES

6. What kinds or types of activities will be required in each module? in-class; out-of-class; independent self-directed; small-group; whole-class; reading; writing; doing; thinking; students only; students and teachers; students, teachers, and parents; students, teachers, parents, community representatives and resource experts.

RESOURCES

7. What resources will be itemized for use within each module?

   Will actual materials be identified and weighed or valued so teachers can recognize those considered most important? e.g., filmstrips, books, games, etc.

EVALUATION

8. What type of evaluative techniques will be built into each instructional module?

   a. What guidelines will be given to the teacher to assist informative evaluation?
   b. Will paper and pencil tests be required of all students?
   c. How will performance competencies be assessed?
   d. How will teachers record progress of individual competencies that are evolving?

APPENDIX H

Project in Environmental Action/Community Education

External Reviewer's Analysis

MODULE	TOPIC	REVIEWER	DATE

1. The competencies selected are meant to cut across all content lines. Do you feel the important thinking skills associated with this subject's inquiry processes are included? Excluding those related to special equipment, are there omissions which you note?

2. Content outlines are intended as "minimal guides". Teachers are expected to make additions. Do you feel the essential topics are covered in this content area? Do you feel the essential information on topics has been covered? What deletions or additions would you make?

3. What comments can you make relative to the sequencing of content for this subject?

4. Do you feel the content listed is appropriate for junior high school students?

5. Do you feel the activities described involve the competencies and subject matter content that is important for this topic?

6. In general, how do you judge the format of the module?

7. Do you have additional comments you can make about the module, which were not brought out by the previous questions?

MODULE REVIEWER RESPONSE FORM

Name of Reviewer ______________________________

Agency/Institution/Organization ______________________________

Your Title or Position ______________________________

Module Name ______________________________

Rate each of the items below using the following scale:

1	2	3	4	5
Very Low	Low	Moderate	High	Very High

Importance of the subject of the module to Memphis Community	____
Relation of the topics to the subject fo the module	____
Clarity of module objectives	____
Clarity of activity objectives	____
Specificity of activity instructions	____
Format of activity sheets	____
Attractiveness of the module	____
Appropriateness of module for use in the school curriculum	____

Suggested changes, if any:

Module

Topics (additions, deletions, revisions)

Activities (additions, deletions, revisions)

Would you recommend that schools use the module?

_____ Yes, extensively

_____ Yes, to a limited extent

_____ No

APPENDIX I

LEADERSHIP MODULE EVALUATION SCALE
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Last four digits of Social Security Number ______________ Date ____________________

PART I. The Project in Environmental Action/Community Education (P.E.A.C.E.) is designed to address a specific set of stated objectives. The ten objectives listed below include the stated objectives of P.E.A.C.E. (with minor changes to avoid reference to the environment) and non-P.E.A.C.E. objectives. For each objective, circle "Yes" if the objective is a stated objective of P.E.A.C.E. or "No" if it is not.

Yes No 1. To develop intelligent strategies and actions for solving specific types of urban problems

Yes No 2. To promote the use of competency-based instruction by teachers

Yes No 3. To direct the project toward a self-sustaining basis by generating increased local financial support

Yes No 4. To utilize the junior high school science and/or social studies curriculum framework for increasing awareness of specific types of problems in the urban community

Yes No 5. To implement an action-oriented and community-based curriculum project

Yes No 6. To expand the opportunities for academic success by junior high school students in urban communities

Yes No 7. To achieve a fuller understanding of the urban community, its problems, and possible solutions

Yes No 8. To improve school-community relations by bringing the school closer to the community

Yes No 9. To educate the citizenry (students and parents) in the process of problem solving

Yes No 10. To increase knowledge and understanding of local political processes and issues in the urban community

PART II. In the implementation of the P.E.A.C.E. instructional modules, the school's leadership personnel should be aware of a variety of administrative considerations. Listed below are eight types of administrative considerations. They are followed by ten questions that relate to specific types of considerations. After reading each question, indicate the type of administrative consideration to which it is most closely related by writing in the space before the number of the question the letter that corresponds to the type of consideration.

Types of Administrative Considerations

A. Advance Planning
B. Communication
C. Supervision
D. Curriculum
E. Instruction
F. School-Community Relations
G. Evaluation
H. Post-Evaluation Activities

Questions

_____ 1. How will needed changes be identified and improvements initiated?

_____ 2. How will informal observations by the school principal be planned?

_____ 3. What curriculum changes should be explored after the formal project is completed?

_____ 4. What specific tasks should be addressed immediately?

_____ 5. How will parents be involved in P.E.A.C.E.?

_____ 6. What type of records will be maintained?

_____ 7. What arrangements will be made to plan, supervise, and coordinate field trips and other out-of-school activities directly related to P.E.A.C.E.?

_____ 8. What information will be disseminated to non-participating faculty?

_____ 9. What specific modifications will need to be made in existing program objectives to incorporate P.E.A.C.E.?

_____ 10. How will classroom visits by various P.E.A.C.E. team members be coordinated?

PART III. The ten terms listed below represent some approaches that may be used in the teaching-learning process. Some of these approaches are emphasized in the P.E.A.C.E. instructional modules while others are used rarely or not at all. For each term, circle "Yes" if the approach is emphasized in the modules or "No" if it is not.

Yes No 1. Field experiences

Yes No 2. Team teaching

Yes No 3. Tutorial activities

Yes No 4. Individualized activities

Yes No 5. Lecture

Yes No 6. Small group activities

Yes No 7. Interviewing

Yes No 8. Programmed instruction

Yes No 9. Problem solving instruction

Yes No 10. Diagnostic/prescriptive teaching

APPENDIX J

TEACHER INSERVICE MODULE EVALUATION SCALE
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Last four digits of Social Security Number ______________ Date ____________________

PART I. The Project in Environmental Action/Community Education (P.E.A.C.E.) is designed to address a specific set of stated objectives. The ten objectives listed below include the stated objectives of P.E.A.C.E. (with minor changes to avoid reference to the environment) and non-P.E.A.C.E. objectives. For each objective, circle "Yes" if the objective is a stated objective of P.E.A.C.E. or "No" if it is not.

Yes No 1. To develop intelligent strategies and actions for solving specific types of urban problems

Yes No 2. To promote the use of competency-based instruction by teachers

Yes No 3. To direct the project toward a self-sustaining basis by generating increased local financial support

Yes No 4. To utilize the junior high school science and/or social studies curriculum framework for increasing awareness of specific types of problems in the urban community

Yes No 5. To implement an action-oriented and community-based curriculum project

Yes No 6. To expand the opportunities for academic success by junior high school students in urban communities

Yes No 7. To achieve a fuller understanding of the urban community, its problems, and possible solutions

Yes No 8. To improve school-community relations by bringing the school closer to the community

Yes No 9. To educate the citizenry (students and parents) in the process of problem solving

Yes No 10. To increase knowledge and understanding of local political processes and issues in the urban community

PART II. The P.E.A.C.E. instructional modules contain activities that are organized around several topics related to the urban environment. The ten terms listed below include some topics used to organize the activities into modules and some topics that were not used as organizers, although the topic may have been addressed in one or more modules. For each term, circle "Yes" if the topic was used as a module activity organizer or "No" if it was not.

Yes No 1. Aesthetics

Yes No 2. Space Exploration

Yes No 3. Cultural Dynamics

Yes No 4. Resource Management

Yes No 5. Economic Development

Yes No 6. Legal Regulations

Yes No 7. Social Services

Yes No 8. Business and Industry

Yes No 9. Transportation and Communication

Yes No 10. Tourism

PART III. The ten terms listed below represent some approaches that may be used in the teaching-learning process. Some of these approaches are emphasized in the P.E.A.C.E. instructional modules while others are used rarely or not at all. For each term, circle "Yes" if the approach is emphasized in the modules or "No" if it is not.

Yes No 1. Field experiences

Yes No 2. Team teaching

Yes No 3. Tutorial activities

Yes No 4. Individualized activities

Yes No 5. Lecture

Yes No 6. Small group activities

Yes No 7. Interviewing

Yes No 8. Programmed instruction

Yes No 9. Problem solving instruction

Yes No 10. Diagnostic/prescriptive teaching

APPENDIX K

RESOURCE MANAGEMENT MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Ten words and terms related to resource management are listed in the column at the left below. In the column at the right, thirteen definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of the word or term the letter corresponding to the definition in the right-hand column.

Word or Term

_____ 1. Consumer

_____ 2. Ecology

_____ 3. Economics

_____ 4. Ecosystem

_____ 5. Environment

_____ 6. Food Web

_____ 7. Nuclear Power Plant

_____ 8. Pollution

_____ 9. Population

_____ 10. Resources

Definition

a. Any device, machine, or assembly that changes atomic energy into some form of useful power, such as electricity

b. Study of the interrelationships of living things to one another and to their surroundings

c. Groups of plants and animals living in harmony with their surroundings

d. Relating to a city

e. A group of organisms living in an area at a given time

f. Law-making

g. An unfavorable change in an area caused by humans

h. Production, distribution, and consumption of goods and services

i. People who may cause change in the legislative process

j. Things that are used - either natural or man-made

k. A person who expends resources

l. The surroundings in which humans live

m. A drawing that shows the many relationships between the organisms in our surroundings

ENVIRONMENTAL ETHICS MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Nine words and terms related to environmental ethics are listed in the column at the left below. In the column at the right, eleven definitions are listed. You are to indicate the definition of each word or term by writing in the space before the number of each word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Conservation
____ 2. Ecology
____ 3. Ecosystem
____ 4. Energy
____ 5. Environment
____ 6. Environmental Pollution
____ 7. Natural Resources
____ 8. Nuclear Energy
____ 9. Pesticide

Definition

a. The presence of undesirable or unwholesome elements in people's surroundings

b. The capacity for doing work

c. An agent or substance used to destroy animals or plants that are harmful to humans

d. Careful use and planned management of resources

e. Groups of plants and animals living in harmony with their surroundings

f. A group of organisms living in an area at a given time

g. The power to do work that is derived from the atom

h. The surroundings in which humans live

i. Materials and capacities supplied by nature

j. Production, distribution, and consumption of goods and services

k. Study of the interrelationships of living things to one another and to their surroundings

CULTURAL DYNAMICS MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Ten words and terms related to cultural dynamics are listed in the column at the left below. In the column at the right, thirteen definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of the word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Affluence
____ 2. Civil Rights
____ 3. Ethnic Group
____ 4. Family
____ 5. Handicapped Persons
____ 6. Minority Group
____ 7. Neighborhood
____ 8. Poverty
____ 9. Race
____ 10. Society

Definition

a. The personal liberties guaranteed by the 13th and 14th Amendments to the United States Constitution and by acts of the Congress

b. The state of not having the usual or socially acceptable amount of money or material possessions

c. A part of a population differing from others in some characteristics and often subjected to differential treatment

d. The state of having a sufficient and typically increasing supply of material possessions

e. A section of a city having distinguishing characteristics

f. Group of people having common traditions, institutions, and collective activities and interests

g. The whole number of people or inhabitants in a country or region

h. A division of mankind possessing physical traits that are transmissable by decent and sufficient to characterize it as a distinct human type

i. Group of people classified according to common traits and customs

j. The basic unit of groupings of people

k. A formally recognized rule of conduct mutually agreed upon

l. The act or process of gaining knowledge

m. Individuals who for one reason or another are limited in their physical or mental ability

SOCIAL SERVICES MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Ten words and terms related to social services are listed in the column at the left below. In the column at the right, thirteen definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of the word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Abuse
____ 2. Crime
____ 3. Dehumanized
____ 4. Densely Populated
____ 5. Frustration
____ 6. Handicapped
____ 7. Neglect
____ 8. Rehabilitation
____ 9. Unemployment
____ 10. Unequal Resources

Definition

a. A physical or mental condition that prevents an accomplishment or a success

b. Feelings of fear or uneasiness about what may happen

c. The state of not having the usual or socially acceptable amount of money or material possessions

d. Restoration to good condition or to a working condition

e. The act of breaking a law

f. Being used or treated wrongly

g. Lack of a job to earn an income

h. A formally recognized rule of conduct mutually agreed upon

i. Feelings of being deprived of human qualities or worth as a person

j. Less care or attention than is needed

k. Many people in a given or limited space

l. The process of damaging or destorying something slowly

m. An inadequate amount of supplies or material things for everyone to have as much as they need, leaving some persons with all that they need and others with less than they need

AESTHETICS MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Ten words and terms related to aesthetics are listed in the column at the left below. In the column at the right, thirteen definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of each word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Culture
____ 2. Ecology
____ 3. Energy
____ 4. Environment
____ 5. Erosion
____ 6. Food Chain
____ 7. Pollution
____ 8. Preservation
____ 9. Recycle
____ 10. Resources

Definition

a. Groups of plants and animals living in harmony with their surroundings

b. The capacity for doing work

c. The act of keeping something safe from injury, harm, or destruction

d. The intellectual, moral, and aesthetic characteristics of the people who make up a society

e. The processing of a material or substance that has been used so that it can be used again

f. The act of consuming materials

g. Things that are used - either natural or man-made

h. The process of damaging or destroying a substance slowly

i. The surroundings in which humans live

j. Study of the interrelationships of living things to one another and to their surroundings

k. The presence of undesirable or unwholesome elements in people's surroundings

l. The state of having a sufficient and typically increasing supply of material possessions

m. A way of describing who or what eats whom or what in a situation where animal life and plant life are harmoniously balanced

DEVELOPMENT AND PLANNING MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ____________________________ Grade _____________

Ten words and terms related to development and planning are listed in the column at the left below. In the column at the right, thirteen definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of the word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Downtown

____ 2. Industrial Area

____ 3. Minority Group

____ 4. Mobile Neighborhood

____ 5. Neighborhood

____ 6. Neighborhood Business District

____ 7. Stable Neighborhood

____ 8. Suburban

____ 9. Urban

____ 10. Urban Renewal

Definition

a. A section of a city having distinguishing characteristics

b. Production, distribution, and consumption of goods and services

c. The re-development of an area of a city that has become rundown

d. Relating to a city

e. A part of a population differing from others in some characteristics and often subjected to differential treatment

f. A section of a city that has a concentration of manufacturing plants

g. The surroundings in which humans live

h. A section of a city usually containing businesses and the main offices of government

i. A part of a city where a large proportion of the residents move in and leave in a relatively short period of time

j. Relating to an area, usually residential, located near the boundary of a city

k. A part of a population which for one reason or another has limitations of physical or mental ability

l. A section of a city that has residents who have lived there for a relatively long period of time

m. A concentrated group of stores and shops in an area that is primarily residential

LEISURE ACTIVITIES MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Six words and terms related to leisure activities are listed in the column at the left below. In the column at the right, ten definitions are presented. You are to indicate the definition of each word or term by writing in the space before the number of the word or term the letter corresponding to the definition in the right-hand column.

Word or Term

____ 1. Discretionary Time

____ 2. Hobby

____ 3. Leisure Experience

____ 4. Leisure Time

____ 5. Recreational Resource

____ 6. Work

Definition

a. The process of damaging or destroying something slowly

b. The surplus time that remains after all formal duties and necessities of life have been met

c. Activity that a person does to earn a living

d. Material or capacity supplied by nature

e. Any activity, area, game, or equipment that is available for leisure use

f. The surplus time that remains after activity to earn a living is completed

g. A formally recognized rule of conduct mutually agreed upon

h. A specialized activity outside a person's regular occupation that is done, usually in a non-professional way, because it is interesting and enjoyable

i. The state of having a sufficient and typically increasing supply of material possessions

j. The act of participation, actively or passively, in leisure activities

TRANSPORTATION AND COMMUNICATION MODULE TEST
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date ______________

School ______________________________ Grade ______________

Nine words related to transportation and communication are listed in the column at the left below. In the column at the right, twelve definitions are presented. You are to indicate the definition of each word by writing in the space before the number of the word the letter corresponding to the definition in the right-hand column.

Word

_____ 1. City

_____ 2. Communication

_____ 3. County

_____ 4. Ecology

_____ 5. Environment

_____ 6. Metropolitan

_____ 7. Rural

_____ 8. Transportation

_____ 9. Urban

Definition

a. Means of travel or conveyance from one place to another

b. The surroundings in which humans live

c. Production, distribution, and consumption of goods and services

d. Process by which meanings are exchanged between individuals through a common system of symbols

e. Relating to a city

f. The largest territorial division for local government in the United States

g. Groups of plants and animals living in harmony with their surroundings

h. An inhabited place of larger population than a town or village

i. Relating to the country

j. Study of the interrelationships of living things to one another and to their surroundings

k. An unfavorable change in an area caused by humans

l. Relating to the chief city of a region

APPENDIX L

MODULE ACTIVITY QUESTIONNAIRE
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date Completed ______________

School ______________________ Grade ________ Activity Code ________

FILL OUT A COPY OF THIS FORM FOR EACH ACTIVITY THAT YOU COMPLETE.

Number of other students you worked with (0, if none) ________

Number of out-of-school persons you contacted (0, if none) ________

Number of minutes you spent on the activity (estimated) ________

* *

Rate each of the items below using the following scale:

1	2	3	4	5	6	7	8	9	10	Rating
Very Low									Very High	

Your understanding of the objective ________

Your understanding of the instructions ________

Quality of the work you did in the activity ________

Your level of interest in the activity ________

* *

Activity probably interesting to other students: Yes ____, No ____.

Write on back of form: Names of agencies, businesses, institutions, and/or organizations you contacted in doing the activity.

APPENDIX M

PROBLEM SOLVING PROCESSES INVENTORY
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

PART I. The rational problem solving process can be described as a five-step approach for dealing with environmental problems. Each step can be viewed as an attempt to answer several questions as the process is followed with a particular problem. Listed below are the five steps of the rational problem solving process, followed by ten questions (items 21-30) that should be answered at different steps in the process. For each question, you are to indicate the step to which it is most closely related by filling in the space under the letter on the answer sheet that corresponds to the step you choose. Mark your responses for the ten questions in the second column (items 21-30) of the separate answer sheet.

Steps:

A. Defining the Problem . . . . Fill in space under A   A ● B ○ C ○ D ○ E ○

B. Data Collecting and Recording . . Fill in space under B   A ○ B ● C ○ D ○ E ○

C. Formulating a Hypothesis . . . . . Fill in space under C   A ○ B ○ C ● D ○ E ○

D. Testing the Hypothesis . . . . . Fill in space under D   A ○ B ○ C ○ D ● E ○

E. Drawing Conclusions or Formulating Solutions . . . . . . Fill in space under E   A ○ B ○ C ○ D ○ E ●

Questions:

Item 21. What steps would be required to implement each solution?

Item 22. What does the information collected tell you about the nature of the problem?

Item 23. How will the solution chosen contribute to the improvement of the problem?

Item 24. What are some factors that contribute to the problem?

Item 25. What are the effects of each possible solution considered?

Item 26. Where can information about the problem be obtained?

Item 27. What can you say, in general, about how to solve such problems?

Item 28. What does the information collected tell you about the causes of the problem?

Item 29. What is the problem?

Item 30. What methods can be used to collect the information needed concerning the problem?

PART II. The creative problem solving process can be defined as a four-step approach to deal with environmental problems. Each step can be described as involving several specific activities that are performed in applying the process. Listed below are the four steps of the creative problem solving process, followed by eight activities (items 31-38) that should be done at different steps in the process. For each activity, you are to indicate the step at which it should be performed by filling in the space under the letter on the answer sheet that corresponds to the step you choose. Mark your responses for the eight activities in the second column (items 31-38) of the separate answer sheet.

Steps:

	A	B	C	D
A. Defining the Problem . . . . Fill in space under A	●	○	○	○
B. Collecting Data . . . . .Fill in space under B	○	●	○	○
C. Analyzing Data . . . . Fill in space under C	○	○	●	○
D. Determining Possible Solutions . . Fill in space under D	○	○	○	●

Activities:

Item 31. Review the information collected to see what it tells you about the problem.

Item 32. Check any available records to get information about the problem.

Item 33. Decide how to solve the problem based on a consideration of all aspects of the problem.

Item 34. Organize the information collected into related groups of information.

Item 35. Write a description of the problem.

Item 36. Using your creativity, identify ways to solve the problem.

Item 37. Talk with persons who are familiar with the problem.

Item 38. Examine the problem with an open mind to be sure that you have identified the important aspects of it.

APPENDIX N

ENVIRONMENTAL ATTITUDE SCALE
PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

The Environmental Attitude Scale contains twenty statements that describe how some people may feel about certain factors related to the urban areas of the United States. Read each statement carefully and think about its accuracy in describing your feelings. Choose a response to each statement using the following response choices:

Strongly Agree - definitely true

Agree - true to a greater degree than false

Neutral - equally true and false

Disagree - false to a greater degree than true

Strongly Disagree - definitely false

Mark your responses to the twenty statements in the first column (items 1-20) of the separate answer sheet. Record your response to each statement according to the following instructions:

	A	B	C	D	E
If you Strongly Agree, fill in the space under A.	●	○	○	○	○
If you Agree, fill in the space under B.	○	●	○	○	○
If you are Neutral, fill in the space under C.	○	○	●	○	○
If you Disagree, fill in the space under D.	○	○	○	●	○
If you Strongly Disagree, fill in the space under E.	○	○	○	○	●

GENERAL INSTRUCTIONS

1. Mark your answers with a No. 2 pencil.
2. Be sure your marks are heavy and dark.
3. Erase completely any answer you wish to change.
4. Mark an answer for every item.
5. Be sure the number you mark on the answer sheet matches the number of the item you read.

Response Choices:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(A)	(B)	(C)	(D)	(E)

Item 1. Conservation of cultural and natural resources should be emphasized in the urban environment.

Item 2. Legislation by the federal, state, and local governments has made the public more aware of the need for environmental protection.

Item 3. The cultural and racial differences within urban populations should be viewed as handicaps in solving environmental problems.

Item 4. Air pollution is a serious problem in most urban communities.

Item 5. Most cities have long-range plans for developing sufficient recreational and cultural facilities to serve their residents.

Item 6. Services for groups of people with special needs, such as the elderly, the poor, and the handicapped, are unrelated to the environmental quality of cities.

Item 7. The different ways that various cultural and racial groups feel about things may affect their choices of solutions to urban environmental problems.

Item 8. Transportation systems have minimal effect on the environment in most urban communities.

Item 9. Most cities promote the conservation of natural resources through actions such as encouraging the use of recyclable containers and packages.

Item 10. Social service agencies, such as mental health centers, job counseling centers, and medical centers, contribute to the solution of urban environmental problems.

Item 11. Public expenditures for recreational and cultural activities are inadequate to meet the needs of residents in most urban communities.

Item 12. The sources of good water are adequate to meet the needs of most American cities for many years.

Item 13. Most cities have set aside more land than is needed for parks and nature areas.

Item 14. The solutions to some urban problems may require changes in communication systems.

Item 15. The management of resources can contribute little to the solution of urban environmental problems.

Item 16. Opportunities for recreational and cultural activities are important to the environmental quality of urban areas.

Item 17. Social movements and organizations, such as those concerned with human and minority group rights, should be disregarded in defining and solving urban environmental problems.

Item 18. Most urban communities have sufficient sources of energy to meet their future needs.

Item 19. The restoration and preservation of historical places in the city are signs of concern for the environment.

Item 20. Most urban communities have been unsuccessful in controlling noise pollution.

PROJECT ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

ENVIRONMENTAL ATTITUDE SCALE

The statments below describe how some individuals may feel about certain factors that affect the quality of life in urban areas of the United States. Read each statement carefully and consider its accuracy in describing your feelings. Mark an answer to each statement using the following response choices:

Strongly Agree (SA) - definitely true
Agree (A) - true to a greater degree than false
Neutral (N) - equally true and false
Disagree (D) - false to a greater degree than true
Strongly Disagree (SD) - definitely false

Be sure to mark an answer for each statement.

1. Air pollution is a serious problem in most urban communities.
2. The sources of good water are adequate to meet the needs of most American cities for many years.
3. Most urban communities need new or expanded sources of energy to meet their future needs.
4. Community planning has been done well in the average American city.
5. The condition of the downtown area may be a good indicator of a city's success in dealing with environmental problems.
6. The population density of a neighborhood in a city has little effect on the quality of the environment.
7. Social service agencies, such as mental health centers, job training centers, and medical centers, contribute to the solution of urban environmental problems.
8. Services for special groups of needy people, such as the elderly, the poor, and the handicapped, contribute little to environmental quality in the city.
9. The restoration and preservation of historical places in the city are signs of concern for the environment.
10. The preservation of outdoor plant life is unrelated to urban environmental quality.
11. The natural resources of the city are important to the creative and performing arts.
12. Environmental protection groups cause more problems for urban communities than they solve.
13. Legislation by the fereral, state, and local governments has made the public more aware of the need for environmental protection.

14. Most cities maintain a proper balance between technological development and environmental protection.

15. Cultural and ethnic differences within a city's population may effect the urban environment.

16. Social movements and organizations, such as those concerned with human and minority group rights, have little influence in defining and solving urban environmental problems.

17. The different ways that various cultural and ethnic groups feel about things affect the choices of solutions to urban environmental problems.

18. Most urban communities have been successful in avoiding noise pollution.

19. The use of pesticides has a harmful effect on the quality of the urban environment.

20. Most cities promote the conservation of natural resources through action such as encouraging the use of recyclable containers and packages.

21. Public expenditures for leisure activities are inadequate to meet the needs of the residents in most urban communities.

22, Most cities have long-range plans for developing adequate recreational and cultural facilities to serve their residents.

23. Transportation systems adversely affect the environment in most urban communities.

24. Communities media, such as the telephone, television, and newspaper have little impact on environment quality, in most cities.

25. Community planning is necessary to avoid and reduce environmental problems in urban areas.

26. Social services programs should not be regarded as contributing to the solution of urban environmental problems.

27. Conservation of cultural and natural resources should be emphasized in the urban environment.

28. The management of resources can contribute little to the solution of urban environmental problems.

29. The cultural and ethnic differences among urban populations should be viewer as assets in solving environment problems.

30. The needs of the individual should be valued more than the rights of the community in dealing with urban environmental problems.

31. Opportunities for leisure activities are important to the environmental quality of urban areas.

32. The solutions to some urban environmental problems may require changes in the communications and transportation systems.

33. The responsibllity to solve urban environmental problems rests primarily with government agencies rather than individual citizens.

34. The solution of urban environmental problems requires that individuals regard themselves as part of the problem and solution.

35. The public should become more informed about the environmental problems facing urban communities.

36. The severity of urban environmental prolbems is exaggerated by ecologists.

PROJECT ENVIRONMENTAL ACTION/COMMUNITY EDUCATION
EVALUATION INSTRUMENT I

SITUATION A

You are the manager and part owner of a young, growing construction company. Your firm has been awarded a contract to build a new Community Center. If you complete the project according to the contract schedule, other large contracts with the city will be given to you.

Several old houses are near the construction site, The historical society plans to restore them later in the year. The houses block easy access to a main road and will slow down construction work. You could move materials to the site much quicker if the houses were not there.

You find a provision in your contract that would legally let you demolish the old houses. Do you let the old houses remain or demolish them?

---

1. Demolish the old houses because the contract permits it and more contract with the city can be obtained by finishing the job quicker.
2. Demolish the old houses because the Community Center can be built quicker and opened for people to use sooner.
3. Let the old houses remain because the community expects it and will approve your decision.
4. Let the old houses remain because the decisions of the historical society should be respected since their decisions are for the best interests of the community.
5. Let the old houses remain because you owe it to the community to help preserve its history.
6. Let the old houses remain because you can make your community better by doing this and it is the right desision for you or anyone else to make.

PROJECT ENVIRONMENTAL ACTION/COMMUNITY EDUCATION
EVALUATION INSTRUMENT II

SITUATION B

You are a member of the city council and have been asked to take the lead in sponsoring an important ordinance on comminity development planning. Unplanned development in your city is destroying wildlife and overloading the water and sewage systems. It is predicted that open land will be gone by 1990. Several citizen groups are proposing a law to limit the growth of the city.

The influential businessmen of the city are opposed to any legislation that would control development of the community. You will be up for re-election in six months and these businessmen usually contribute a considerable amount of money to your election campaign. What do you do about the proposed ordinance?

---

1. Refuse to sponsor the ordinance because you will lose the financial support of businessmen in the election.
2. Refuse to sponsor the ordinance but seek to arrange a compromise because you want to retain the support of the businessmen and gain the support of citizen groups requesting the ordinance.
3. Support the ordinance because you feel that a majority of the citizens in the community support it.
4. Support the ordinance because it is necessary in order to avoid decline of the community.
5. Sponsor the ordinance because you owe it to the citizens who elected you to carry out their wishes.
6. Sponsor the ordinance because it will make the community better for present and future generations.

SITUATION C

You own several acres of wooded land in a recently annexed area of the city. A land developer had offered you a very good price for the land. He wants to build a large shopping center that would be located in a neighborhood with rapidly growing population.

The City Park Commission has also made an offer to buy the land in order to develop a park with recreational facilities to serve the residents of the area. However, the Park Commission cannot pay as much for the land as the land developer has offered you. The residents of the area overwhelming support the sale of the land to the Park Commission because they feel that the park will meet the recreational needs of the neighborhood and will make the niehgborhood a more attractive place to live.

Do you sell the land to the land developer or to the Park Commission?

---

1. Sell the land to the land developer because you can make a larger profit by selling it to him.
2. Sell the land to the land developer because the proposed shopping center will make shopping more convenient for the people living in the area.
3. Sell the land to the Park Commission because most of the community residents want the land to be used as a park.
4. Sell the land to the Park Commission because the community needs a park to provide recreational facitities for the residents.
5. Sell the land to the Park Commission because the residents have the right to expect that the land will be used in a way which will be best for the community.

6. Sell the land to the Park Commission because you can contribute to the betterment of the community by providing the land to develop a neighborhood park.

SITUATION D

You are the owner of a retail store that is open for business every day of the week. Your community is facing a crisis because the supply of electricity is inadequate to meet the growing demands of users. In response to the problem, the Board of the Retail Merchants Association has voted to ask all retail merchants in the city to close thier business one day each week.

Although you are a member of the Association, you are free to make your own decision about closing your store one day per week. If you comply with the request, you will lose some sales and reduce your profits from the business. If you do not comply, the cost of electricity will probably increase and the crisis may cause some factories to be closed during times of critical shortage.

Do you choose to keep your store open seven days a week or to close one day per week?

---

1. Stay open every day because the additional profits would be more than any increase in the cost of electricity.
2. Stay open every day because it makes shopping more convenient for some customers.
3. Close on one day because your customers will be angry toward you if you do not colse.
4. Close on one day because the decision of the Board of the Retail Merchants Association should be respected.
5. Close on one day because you are obligated to help the community that supports your business solve the problems.
6. Close on one day because everyone should do something to help the community solve the problem in order to avoid harmful effects for some people.

OBIS is a program with a variety of outdoor activities for youngsters to enjoy. While engaged in these activities, individuals also learn more about the environment in which they live. OBIS activities emphasize interactions of organisms with each other and with their environment. The activities are also concerned with enteractions of people with their environment. In the OBIS activities, the learner is an active participant rather than a passive recipient of someone else's information. Games, simulations, craft activities, experiments, and analyses of data are examples of various strategies used. These activities are designed primarily for ten- to fifteen-year-old children in community groups. However, both younger and older participants, including families, enjoy participating in OBIS activities. Although intended primarily for community groups, the activities are suitable for environmental school programs.

APPENDIX O

ENVIRONMENTAL ACTION OPTIONS SCALE

The Environmental Action Options Scale contains a description of two situations involving decisions related to the environment. Following the description of each situation, six response choices are given that state the course of action and the reason for choosing the course of action. Read all of the response choices completely for each situation before selecting your answer. After reading the response choices for each situation and making your selection, fill in the space under "A" on the separate answer sheet for the number of the one item that corresponds to your response choice. Leave all spaces blank for the other five response choices for each situation. You will fill in the space under A for only one of the items numbered 39 - 44 and only one of the items numbered 45 - 50.

SITUATION A

You are a member of the city council and have been asked to take the lead in sponsoring an important ordinance on community development planning. Unplanned development in your city is destroying wildlife and overloading the water and sewage systems. It is predicted that all open land will be gone by 1990. Several citizen groups are proposing laws to limit the growth of the city.

The influential businessmen of the city are opposed to any legislation that would control development of the community. You will be up for re-election in six months and these businessmen usually contribute a considerable amount of money to your election campaign. What do you do about the proposed ordinance?

Response Choices:

(Fill in the space under A for the item number on the separate answer sheet that corresponds to your response choice.)

Item 39. Support the ordinance because you feel that a majority of the citizens in the community support it.

Item 40. Sponsor the ordinance because you owe it to the citizens who elected you to carry out their wishes.

Item 41. Refuse to sponsor the ordinance but seek to arrange a compromise because you want to retain the support of the businessmen and gain the support of citizen groups requesting the ordinance.

Item 42. Sponsor the ordinance because it will make the community better for present and future generations.

Item 43. Refuse to sponsor the ordinance because you will lose the financial support of the businessmen in the election.

Item 44. Support the ordinance because it is necessary in order to avoid the decline of the community.

SITUATION B

You own several acres of wooded land in a recently annexed area of the city. A land developer has offered you a very good price for the land. He wants to build a large shopping center that would be located in a neighborhood with a rapidly growing population.

The City Park Commission has also made an offer to buy the land in order to develop a park with recreational facilities to serve the residents of the area. However, the Park Commission cannot pay as much for the land as the land developer has offered you. The residents of the area overwhelming support the sale of the land to the Park Commission because they feel that the park will meet the recreational needs of the neighborhood and will make the neighborhood a more attractive place to live.

Do you sell the land to the land developer or to the Park Commission?

Response Choices:

(Fill in the space under A for the item number on the separate answer sheet that corresponds to your response choice.)

Item 45. Sell the land to the Park Commission because the community needs a park to provide recreational facilities for the residents.

Item 46. Sell the land to the land developer because you can make a larger profit by selling it to him.

Item 47. Sell the land to the Park Commission because the residents have the right to expect that the land will be used in a way which will be best for the community.

Item 48. Sell the land to the land developer because the proposed shopping center will make shopping more convenient for the people living in the area.

Item 49. Sell the land to the Park Commission because you can contribute to the betterment of the community by providing the land to develop a neighborhood park.

Item 50. Sell the land to the Park Commission because most of the community residents want the land to be used as a park.

APPENDIX P

PROBLEM STUDY REPORT

PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION

Name ______________________________ Date Report Completed __________

School ____________________ Grade ________ Module __________________

(USE BACK OF SHEET IF MORE SPACE IS NEEDED FOR ANY PART OF THE REPORT.)

Brief statement of the problem:

Persons and agencies, businesses, institutions, and organizations you contacted for information:

Possible solutions you identified for the problem:

Solution you recommend for the problem:

Reasons why the solution you recommend is good (advantages):

Reasons why the solution you recommend is poor (disadvantages):

APPENDIX Q

STUDENT QUESTIONNAIRE

PROJECT IN ENVIRONMENTAL ACTION/COMMUNITY EDUCATION (P.E.A.C.E.)

Name ______________________ Date ______________

School ______________________ Grade ______________

Your reactions to the Project in Environmental Action/Community Education (P.E.A.C.E.) are needed as part of the evaluation of the materials. You are asked to express your opinions about P.E.A.C.E. on the factors listed below. Rate each factor listed using the following scale:

1	2	3	4	5	6	7	8	9	10
Very Low									Very High

1. Variety of activities included in P.E.A.C.E. ____
2. Freedom to choose activities to do in P.E.A.C.E. ____
3. Chance to do some P.E.A.C.E. activities individually and in small groups ____
4. Importance of what is learned in P.E.A.C.E. ____
5. Amount of learning that takes place in P.E.A.C.E. ____
6. Helpfulness of the teacher in doing P.E.A.C.E. activities ____
7. Interest level of P.E.A.C.E. activities ____
8. Preference for P.E.A.C.E. compared to regular courses in school ____

APPENDIX R

PART III - BUDGET INFORMATION

SECTION A - BUDGET SUMMARY

GRANT PROGRAM, FUNCTION OR ACTIVITY (a)	FEDERAL CATALOG NO. (b)	ESTIMATED UNOBLIGATED FUNDS		NEW OR REVISED BUDGET		
		FEDERAL (c)	NON-FEDERAL (d)	FEDERAL (e)	NON-FEDERAL (f)	TOTAL (g)
1. PEACE		$	$	$ 179, 907	$ 26, 204	$ 206, 111
2.						
3.						
4.						
5. TOTALS		$	$	$ 179, 907	$ 26, 204	$ 206, 111

SECTION B - BUDGET CATEGORIES

6. OBJECT CLASS CATEGORIES	GRANT PROGRAM, FUNCTION OR ACTIVITY				TOTAL (5)
	(1) PEACE	(2)	(3)	(4)	
a. PERSONNEL	$ 71, 872	$	$	$	$
b. FRINGE BENEFITS	11, 569				
c. TRAVEL	8,000.00				
d. EQUIPMENT	---				
e. SUPPLIES	11,500.00				
f. CONTRACTUAL	---				
g. CONSTRUCTION	---				
h. OTHER	77,034.00				
i. TOTAL DIRECT CHARGES	166,293.00				
j. INDIRECT CHARGES	13.326				
k. TOTALS	$ 179,907	$	$	$	$
7. PROGRAM INCOME	$ ---	$	$	$	$

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SECTION C - NON-FEDERAL RESOURCES

(a) GRANT PROGRAM	(b) APPLICANT	(c) STATE	(d) OTHER SOURCES	(e) TOTALS
8. PEACE	$ 26, 204 *	$	$	$ 26, 204
9.				
10.				
11.				
12. TOTALS	$ 26, 204	$	$	$ 26, 204

SECTION D - FORECASTED CASH NEEDS

	TOTAL FOR 1ST YEAR	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER
13. FEDERAL	$ 179, 907	$44, 977	$ 44, 977	$ 44, 977	$ 44, 976
14. NON-FEDERAL	26, 204	6, 551	6, 551	6, 551	6, 551
15. TOTALS	$ 206, 111	$51, 528	$ 51, 528	$ 51, 528	$ 51, 527

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) GRANT PROGRAM	FUTURE FUNDING PERIODS (Years)			
	(b) FIRST	(c) SECOND	(d) THIRD	(e) FOURTH
16.	$	$	$	$
17.				
18.				
19.				
20. TOTALS	$	$	$	$

SECTION F - OTHER BUDGET INFORMATION *(attach additional sheets if necessary)*

21. DIRECT CHARGES:

Printing 15,000	Comm. 2,200	Stipends 30,360
Curricular Materials 10,000	Consultants 6,080	

22. INDIRECT CHARGES:

based on 8% direct charges

23. REMARKS:

*Difference in Audited Indirect Cost Rate of 55% S & W and 8% TDC used.

PART IV - PROGRAM NARRATIVE (attach per instructions)

BUDGET

Administrative and Staff Costs

1.	Director - Dr. Bennett July 1, 1977 - August 12, 1977 100% - based on summer rate	2,256.00
	Sept. 1, 1977 - May 7, 1978 40% time x 23,922 A.Y.	9,569.00
	May 8, 1978 - June 30, 1978 100% based on summer rate	3,690.00
2.	Associate Director - Dr. Ciannangelo July 1, 1977 - August 12, 1977 100% based on summer rate	1,962.00
	Sept. 1, 1977 - May 7, 1978 40% based on 18,638 A.Y.	7,455.00
	May 8, 1978 - June 30, 1978 100% based on summer rate	3,690.00
3.	Media Specialist (Dr. Fitt) July 1, 1977 - August 12, 1977 100% based on summer rate	1,962.00
	Sept. 1, 1977 - May 7, 1978 10% based on 16,971 A.Y.	1,697.00
4.	Science Specialist - Dr. John Thompson July 1, 1977 - August 12, 1977 100% time based on summer rate	1,962.00
	Sept. 1, 1977 - May 7, 1978 20% time based on 17,185 A.Y.	3,437.00
5.	Social Studies Specialist - Dr. Dennie Smith July 1, 1977 - August 12, 1977 100% time based on summer rate	2,256.00
	Sept. 1, 1977 - May 7, 1978 20% time based on 21,765 A.Y.	4,353.00
6.	Research and Evaluation Specialist - Dr. Bowman July 1, 1977 - August 12, 1977 25% time based on 26,117 F.Y. salary x 2 mos.	1,088.00
	Sept. 1, 1977 - April 30, 1978 10% time based on 26,117 F.Y. salary x 8 mos.	1,741.00
	May 1, 1978 - June, 1978 50% time based on 26,117 F.Y. salary x 2 mos.	2,176.00

7. Graduate Assistants (3) July 1, 1977 - Aug. 12, 1977 3 people x $440 each based on Institutional rate		1,320.00
Sept. 1, 1977 - May 30, 1978 3 @ 100% time based on Institutional rate		8,250.00
8. Secretary (Level III) July 1, 1977 - June 30, 1978 (12 mo.) 100% time based on $593/mo.		7,116.00
9. Typist (Level II) July 1, 1977 - June 30, 1978 (12 mo.) 100% time based on $491/mo.		5,892.00
Subtotal Administrative in Staff Costs		71,872.00
Fringe Benefits		
based on 20% S&W for Academic Personnel	9859.00	
13.1% for secretarial	1691.00	
2% for Graduate Assistant	19.00	
Total Fringe Benefits		11,569.00
Total Administrative in Staff Costs		$83,441.00

OPERATIONAL COSTS

Stipends

29 teachers - summer, 1977 40 sessions at $20/session	$17,400.00
4 administrators - summer, 1977 40 sessions at $20/session	2,400.00
8 curriculum specialists - summer, 1977 40 sessions at $20/session	4,800.00
12 teachers (experimental groups) academic year, 1977-78 4 sessions at $20/session	960.00
12 administrators (experimental groups) academic year, 1977-78 4 sessions at $20/session	960.00
12 teachers (control group) academic year, 1977-78 2 sessions at $20/session	480.00
12 administrators (control group) academic year, 1977-78 2 session at $20/session	480.00
24 teachers (experimental and control) summer, 1978 1 session at $20/session	480.00
24 administrators (experimental and control) summer, 1978 1 session at $20/session	480.00
4 students - summer, 1977 4 sessions at $10/session	160.00
4 students - academic year, 1977-78 4 sessions at $10/session	160.00
4 students - summer, 1978 1 session at $10/session	40.00
4 parents - summer, 1977 4 sessions at $15/session	240.00

4 parents - academic year, 1977-78 4 sessions at $15/session	240.00
4 parents - summer, 1978 1 session at $15/session	60.00
4 community representatives - summer, 1977 4 sessions at $15/session	240.00
4 community representatives - academic year, 1977-78 4 sessions at $15/session	240.00
4 community representatives - summer, 1978 1 session at $15/session	60.00
8 curriculum specialists - summer, 1978 2 sessions at $20/session	320.00
4 administrators - summer, 1978 2 sessions at $20/session	160.00
Subtotal Stipends	$30,360.00

Consultant		
Public School Liaison Person - Mr. Charles Jackson		
July 1, 1977 - August 12, 1977		
30 days at $40 per day		1,200.00
Sept. 1, 1976 - April 30, 1977		
40 days at $40 per day		1,600.00
May 1, 1977 - June 30, 1977		
10 days at $0 per day		400.00
8 curriculum specialists		
Sept. 1, 1977 - April 30, 1978		
16 sessions at $20 per day		2,560.00
May 1, 1977 - June 30, 1977		
2 sessions at $20 per day		320.00
Subtotal Consultant		6,080.00
Supplies		
Office		3,500.00
Program		8,000.00
Travel		
Local - staff		500.00
Local - class fieldtrips		3,500.00
National - staff		4,000.00
Communication		
Phone		1,000.00
Postage		1,200.00
Curricular Materials for Learning Resources Center		10,000.00
Printing - 80 Instructional Kits		15,000.00
Subtotal Operational Costs		83,140.00
Total Direct Costs		166,581.00
Indirect Costs Based on 8% Direct Costs		13,326.00
Total Project Funds Requested		179,907.00
Institutional Contribution:		
Audited Indirect Cost rate @ 55% S & W =	39,530	
Indirect Cost Charged @ 8% TDC =	13,326	
Differences in Audited rate and rate charged		26,204.00
Project Cost All Sources		206,111.00